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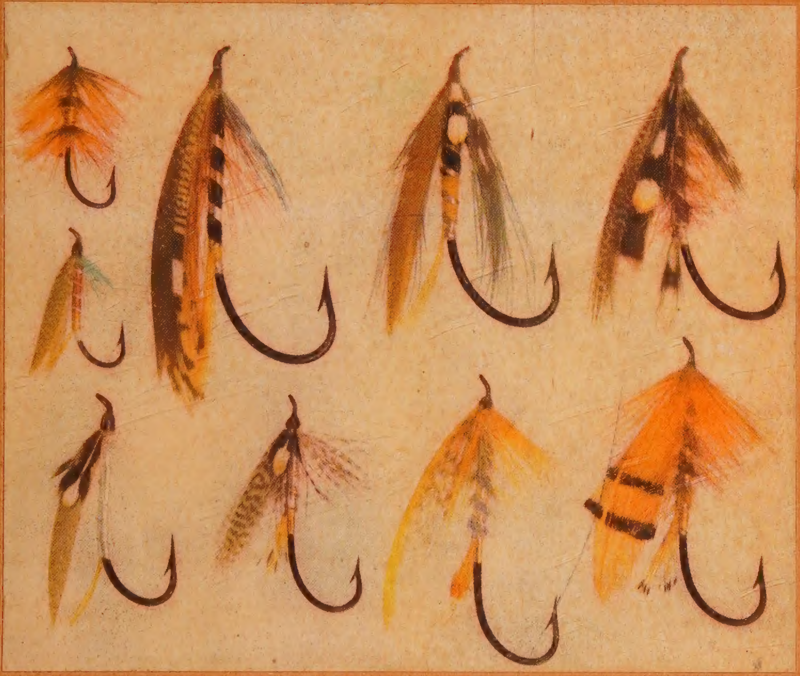

SALMON FISHING

ERIC TAVERNER

WYNDHAM FORBES, C. G. HEYWOOD, J. W. HILLS,
G. M. L. LA BRANCHE, W. J. M. MENZIES,
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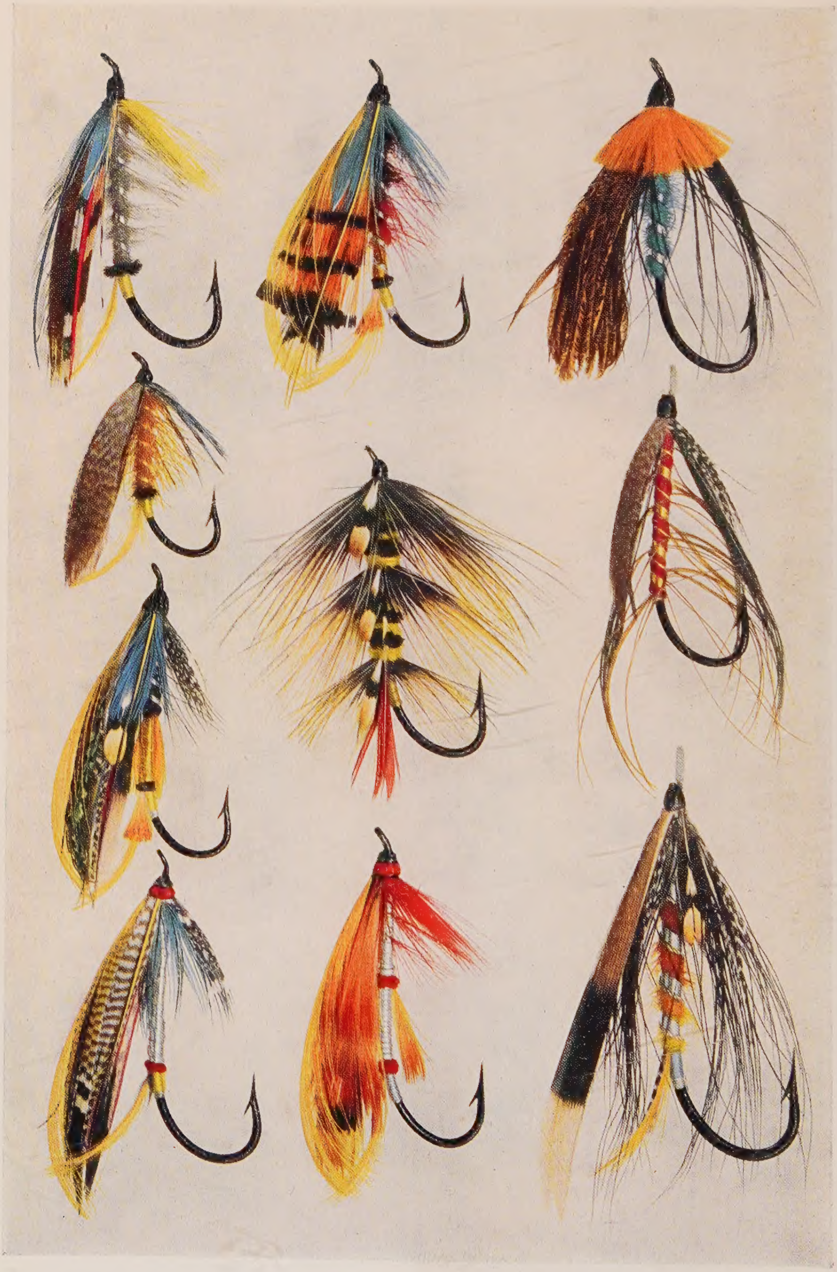

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'*Remember that the Wit and Invention of Mankind were bestowed for other Purposes than to deceive silly Fish; and that however delightful Angling may be, it ceases to be innocent when used otherwise than as a mere Recreation.*'—Richard Brookes (1766).

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EDITORS' INTRODUCTION

BY

THE RT. HON. THE EARL OF LONSDALE, K.G., G.C.V.O. D.L.

IT is now a long time since a Library of volumes on Sport and Games was first put before the public. During these many years great changes have taken place, in men and in methods; how numerous and how great those changes have been, it needs no more than a glance at the text and illustrations of the older existing volumes to discover. The traditions, the customs, the guiding principles of the great sports and games doubtless remain; but as the years go on new discoveries are made, new developments follow, new methods are found to be successful. In the process of time these demand notice and explanation.

It would not be difficult to give examples of many such changes. A few may suffice. To take the sport of shooting first, even some twenty years ago almost nothing was known of the nature and causes of what was vaguely called "disease" in grouse. The knowledge which research and examination have given us of these to-day has profoundly affected methods of moor management. Again, in regard to fishing, it is only of recent years that we have been able to piece together the life-history of the salmon by means of the reading of scales; we have learned much of the powers of vision of fish; and there have been many improvements in the manufacture of rods and tackle. To come to games. In cricket there have been alterations in the rules, fields are placed differently, modes of batting and of bowling are not what they used to be; in golf, changes in the standards of clubs and of the ball have in turn altered standards of play; and the lawn-tennis of modern Wimbledon is a different game from that of a past generation.

It is believed, therefore, that the Lonsdale Library should fill a gap. Its aim is to help and to instruct. It is intended in the first place for the beginner who wishes to learn all that the written word can teach him of his chosen subject, and to obtain authoritative advice on gear and in practice. But it is also hoped that the more experienced sportsman may find matter of interest in the pages of the Library; either in the bringing together of newly discovered facts or new suggestions for study, or in the comparison of other sportsmen's or players' opinions with his own. No pains have been spared to make the text and the illustrations as full and representative as possible, and if the various volumes succeed in their double appeal to the tyro and to the expert, the Library will have fulfilled the purpose of its Editors, which is, to make it complete.

Lonsdale

PREFACE

MODERN construction is complex and needs help from many. It has been the same with the present book, except that material and much friendly advice have been freely given in the name of the sport we all love in common.

I wish to thank the following good friends for the infinite pains they have taken in reading the text and in making many invaluable suggestions.

Mr W. J. Barry, of Witchingham, Norfolk, kindly read and commented on the chapters on Practice with Sunk Fly; and Captain W. Cornewall, of 5 Marlborough Road, London, N.W.3, gave me much help in the chapter on Casting the Fly, a subject on which he is an acknowledged expert.

To the Right Honourable J. W. Hills I owe a great deal for his critical reading of the chapters dealing with the Literature of Salmon Fishing, for a most interesting set of patterns representing those in use on Eden just before the close of the last century, for writing a short essay describing them and for divers acts of friendship.

Mr G. H. Nall did not hesitate for a moment to add to his heavy burden of work and once more put me deeply in his debt by undertaking the labour of reading the four chapters on the life of the salmon and by giving me without stint from his wide knowledge of the subject.

This book is the poorer because, half-way through the task of writing it, I lost the aid of my friend, William Mieze, whose sound straightforward judgment and natural *flair* for things as they should be I could not replace; nor did I dream I was to be denied the pleasure of placing in his hands the finished work.

The chapters connected with fly-tying were read for me by Dr Pryce-Tannatt, who also dressed the exquisite flies appearing under his name in plate 50; for both of these friendly acts I wish to thank him most warmly.

I am much indebted to Mr W. J. M. Menzies of the Scottish Fishery Board for introducing me to Mr Thomas Rook, of Cockermouth, who entered into the scheme of chapters forty-two and forty-three with great enthusiasm, filled all my wants in regard to the plans, photographs and drawings connected with that part of the book and wrote one of these chapters, which will prove of extraordinary interest to those who aim at the high ideals he has attained in managing an association.

To Mr A. H. E. Wood of Glassel I find it hard to express my gratitude for his many acts of kindness. Of his own chapter the ngling world will form its own judgment—and there can be but ne ! Here it is my delight to thank him very deeply for reading much of the text, for giving me at all times sound rational criticism of fact and, above all, for the insight he has enabled me to obtain into some of the meaning and possibilities of greased-line fishing. Thanks, however, mean but little, when a new world is spread before one's eyes.

Endeavour has been made to cover a wide field in collecting illustrations for this volume. To all the following good friends and fellow-anglers, who have made this possible, my best thanks are due.

Captain Alban Bacon ; Mr E. B. Boies, whose request for photographs of Canadian and Newfoundland fishing met with such a generous response from his fellow-members of the New York Anglers' Club—Messrs J. Earle jun., F. Gray Griswold, Otto von Kienbusch—; and the late Mr Nathaniel Dunlop of Dunlossit, Islay, Argyllshire : Mr Edwards-Moss of Henley-on-Thames, who gave me some wonderful photographs of salmon rivers and of salmon ascending a fall : Mr J. A. Hutton, who most kindly sent me special prints of his photographs of *ova* and alevins, as well as six of the views he has taken of the Herefordshire Wye : the figure on page 51 of young salmon and trout is a reproduction of a superb wash-drawing by Mr Henry Lamond, the well-known Secretary of the Loch Lomond Angling Association : Messrs P. D. Malloch Ltd of Perth, Scotland, kindly allowed me to make use of the excellent illustrations in the book for which the founder of that firm is justly famous : the Director of the Aerodynamic Department, National Physical Laboratory, Teddington, Middlesex, was good enough to allow me to reproduce two experimental smoke-photographs : Mr Eric Parker of Hambledon, Surrey : Colonel N. G. Pearson of Bramcote, Nottinghamshire : Mr J. A. Rennie of Newbury, Berkshire, and Mr Sedgwick of Ely, Cambridgeshire. But for their friendly co-operation my task in illustrating this book might well have proved insuperable.

My best thanks are due to Messrs Allcock Ltd, Messrs Milward

Ltd and other hook-makers of Redditch for the great trouble they took in supplying me with specimens of the hooks they make and with much useful information about methods of their manufacture —I am much indebted to the late Mr A. H. Chaytor, who lent me for the coloured plate examples of his own tying of the patterns described in his famous *Letters*. Messrs Haynes of Cork, Ireland, sent me some old salmon-flies and specimens of 'Ideal' hooks; and Mr John Jackson of Dumfries, Scotland, some examples of patterns in use on Esk and Liddle towards the end of the last century. Mr Mountain of Sedbergh, Yorkshire, was kind enough to send me the latest information about the effect on fishing rights of the Derating Act (1929); and Sir Henry Robertson, Bt, of Pâlé, Llanderffel, Merionethshire, helped me considerably in bringing into historical perspective Michael Rogan's method of tying salmon-flies: to both of these my very best thanks are due. And Mr James Rogan of Ballyshannon, Ireland, son of the renowned dresser, generously gave me permission to publish an account of his father's art and sent me specimens of it.

For the trouble they took in dressing correctly the flies from which the coloured plates were made up and for numberless little acts of courtesy I wish to thank Messrs Charles Farlow Ltd of Panton Street, London, W.1, Messrs John Forrest Ltd of Kelso, Scotland and of Thomas Street, W.1, and Messrs Hardy Bros Ltd, of Alnwick, Northumberland. In addition to this, Messrs Hardy Brothers kindly sent me a most interesting collection of hooks, many of which figure in plates 24 and 25—and also they dressed with great fidelity to their original style the flies included in the *de luxe* edition of this book.

Lastly, the patient draftsman, who undertook, without flinching, the labour of reducing to clear and scholarly diagrams that which my unskilled pencil had but faintly and nebulously indicated. He remained cheerful throughout and I cannot thank him too deeply for it!

This volume marks the completion of an attempt to present in all humility to the angling world a summary of the modern practice of fishing for trout and salmon, as well as compressed accounts of the many branches connected with the art itself by the leading specialists of the day—Captain Alban Bacon, Commander Wyndham Forbes, Mr C. G. Heywood, the Right Honourable J. W. Hills, Messrs G. M. L. La Branche, W. J. M. Menzies, G. H. Nall, Eric Parker, J. A. Rennie, Thomas Rook and A. H. E. Wood. It is a great honour to be in such a company. And in the building of this book much material has been drawn from the angling writers and teachers of the past five hundred years. This is a debt I freely acknowledge, but can never repay.

And lastly, my wife, Florence Mary, who at all times has helped me, as could no one else, with knowledge and understanding.

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PROLOGUE

UPON my table, as I write, there is a black-headed gull. It was made in Copenhagen and it swims upon a sea of onyx. Close beside is a seal that will never wet its glazed coat in the grey waters of the sea. On the mantelshelf stands a heron, its cornelian eyes fixed upon the world before its feet, its deadly beak poised for the strike that will never be. These three might have been assembled of set purpose, for they are all enemies of fish ; and so are the otter, the kingfisher, the cormorant, the herring-gull and a host of others.

The most subtle fisher is the otter, to whom an angler can hardly bear ill-will without appearing jealous. And how much they mean to us : the slow measured flap of the heron and the worried piping note of the kingfisher, as it flashes past, electric-blue in the sunshine. These masters are welcome to all the fish they take ; but the worst foes are the black-headed gull, the herring-gull and the cormorant. The first two may, on the balance, be the farmer's friend ; but, as far as we know, none of them has any part in the river-fisherman's scheme. Their true home is by the sea.

Man, the Angler, is, in the main, friendly to the fish that give him sport. He wisely sets bounds for himself and for his fellows, in the knowledge that the union of intelligence with a small part of the cunning of the otter and of the patience of the heron could speedily do irreparable harm to the stock. And he remembers that to a fish it is a matter of life and death : but to a fisherman it is solely a contest between wit and instinct. A thousand pities that the game of angling should be tarnished with the metaphors of war, as though salmon and trout were the angler's most bitter enemies !

Man, the Poacher, is an ancient institution and the natural consequence of the establishment of property laws. Let us be fair and admit there is something to be said for the man who goes angling in secret where the law forbids. With one eye on the fish and the other on the world around him, with both ears cocked to catch the slightest sound, the poaching angler lives closer to the mind of nature than most of us ever will. Some men are born to be poachers, but many are driven to it by lack of opportunity to enjoy their sport legitimately. The modern tendency is for fishing-waters to pass completely into private hands and, if those hands be careful, the fishing is much improved. But an excess of private ownership of rivers will squeeze the chances of good cheap fishing within limits too narrow to be borne. Good free fishing is more scarce than a swallow in November and grows scarcer every season. Soon it will vanish and better so. Everyone helps himself to the honey and none has a care for the stock ! There is a limited amount of good cheap fishing in Scotland and Ireland ; but in England and Wales it grows less. I wish there were more under the wise control and guidance of associations, such as that which is the guardian of much of the Cumberland Derwent ; it would discourage, to a large extent, the poaching I have described above.

For the Poacher, who snatches the salmon when they are on the spawning-beds, there is nothing to be said. He is killing part of the breeding-stock of the river, at a time when it is most valuable and is of little use as food.

Lastly, there is Man, the Polluter of rivers, a product of modern industry. He regards a river as a convenient drain, into which may be directed at no cost to himself the refuse and effluents connected with modern manufacture. And, unfortunately, local authorities are rarely able to deal with a great volume of effluent, much of it toxic, when it is delivered to the main sewers in addition to the augmented volume of domestic waste from new housing-areas, so that they also must shoulder part of the blame for the state of many of the rivers flowing through the industrial areas of Britain. The men who snatch salmon on the redds are destroying part of the breeding-stock ; but those who pollute a river kill or cause to starve many of the fish already in the river, or may actually be denying salmon access to the river, in the fresh waters of which alone they can breed. Industry is essential to the life of the nation. But must it, in consequence, be allowed to destroy the livelihood of thousands who make a living as netsmen, or to reduce the food-supply of the country ? The whole question is generally treated as a struggle between vital industry and luxurious recreation. A false issue, most surely ! Judged by the weight of salmon caught, the tacksman's interest is ten times greater than that of the angler. But there is a vaster claim yet : that of the folk of this fair land to keep the rivers fair and pure and givers of health.

The black-headed gull in front of me has inspired a train of thought, which has led me to wonder how any salmon are able to escape so many dangers, a reflection that must often come to anglers, as they stand watching fish jumping in the pools ! And at this stage in the salmon's endless life-cycle its story will be unfolded.

SALMON FISHING

CHAPTER ONE

LIFE-HISTORY

§ 1. *Introductory.*

ABOUT two thousand years ago the Romans entered Britain and spread over the country. In the course of their wanderings they saw salmon jumping in Thames and Trent (great salmon rivers then), in Severn, Avon and Usk. They saw it, as it leapt, and called it *salmo*, the leaper ; though whether this name was first given to a British or to a Rhenish salmon I do not know. The word itself denotes the sort of admiration we still feel for it to-day. Folk-lore too does not forget to mention the salmon that has lived for a hundred years in a familiar deep dark overhung pool. This is bad natural history ; but it is very interesting as evidence that a salmon or rather one of a succession of salmon was throughout the season always to be found there.

Centuries have passed ; but generations of salmon have rested in the same places, have jumped and wandered about the pool in the same way and, long before flies were invented, were seized with the same ' taking ' mood that means so much to us to-day.

It is by its leaping that most of us make our first acquaintance of a living salmon : in the springtime and early summer, a bar of silver flashing in the sunlight ; or (memories of a Dart fish !) glistening, as it flings itself across the path of the moon ; and again in August, a darker fish growing redder and darker as the year grows older.

You are standing one summer's afternoon by a pool. A salmon has jumped into the air and the ripples set up by its return to the water are widening and every moment the force of them is waning. The river will rise, the salmon will go on its way and will find new resting-places, but you will see it no more. What follows is an attempt to describe its travels and what destiny has in store for it and also for those to whom it hands on the torch of Life.

§ 2. *Of travelling and lodging.*

Salmon make their way up the river by stages that vary much in length ; and it is difficult to say with precision how fast they can run. There was once a belief that, if a salmon with sea-lice still adhering was caught forty-five miles or so up the river, it had travelled at the average rate of thirty miles a day. This method of ascertaining the rate of progress is, however, unreliable, because it is known to-day that sea-lice can, and at times do, survive in fresh-water longer than thirty-six hours, which was once supposed to be the limit of their endurance. These parasites are, in fact, capable, under laboratory conditions, of living upwards of ten days in river-water (see p. 58).

In what other way then can a salmon's travelling-speed be discovered? It might be possible to form an idea of it, if a school of salmon, distinct in size and condition from those which had already been some time in the river, could be observed as they were passing two distant weirs or obstacles. But I think this would produce evidence solely of a special character.

There is another method, which is fairly accurate in relation to a given run of fish. Whenever, in the river I know best, there has been, in July or August, a spate following a drought, I have watched most carefully for a run of fresh fish to appear. It normally took them about four days to cover the sixty miles that separated the lowest weir, which has been placed at the junction of the fresh and tidal waters, from the pools I was then fishing. I allowed twenty-four hours for the flood to make itself felt in the estuary and for the tide to flow, so that a fresh batch of salmon might come up from the sea and negotiate a difficult fish-pass. The travelling-rate of these salmon is thus estimated at twenty miles a day. But these would be fish that entered the estuary more than half through the season and, without being actually pressed for time, wished to make the most of good 'running-water'; but I expect some salmon travel much faster and I have known many that have travelled far more deliberately. On several occasions during the last ten years, I have observed the old phenomenon occurring: the clean summer-fish running through the pools much faster than the old discoloured salmon of the spring.

One week in August, I had the opportunity of observing the progress of a fish, which I was able to recognize by its exceptional size and by its bright-golden colour. On the day after I had first seen it rise, the distance it had then covered was half a mile and on the next it showed a mile further up. The half-mile contains one short piece of rough water; the mile another piece slightly longer; between these the stream flows evenly and at a moderate pace: slow going, even for a heavy fish putting on its spawning-coat!

Salmon that enter the river, from December onwards until March, move with greater deliberation than those which come up later. Mr Menzies, who comments on this on page 102 of *The Salmon: its life-story*, obtained his evidence by the marking of early spring fish; and he accounts for it by saying that 'the two influences which control both the rate of migration and the total distance covered are undoubtedly temperature and the nature of the bed of the river.' By this he means that spring fish encountering the cold water of the melting snows will not travel fast against it, nor will they attempt to overcome obstacles such as weirs or falls; and, while they may travel slowly and steadily against an easy stream, they will refuse to face the rough water and difficulties of a rocky river.

I believe this is in agreement with the observed fact that, during the summer in the Chester Dee, there are two very distinct rates at which salmon will run: that of the slow and somewhat stale fish and that of the quick-travelling summer salmon, fresh up from the sea. The slow-moving fish are spring salmon, which may have acquired early in the year a habit of travelling in short stages, ill-constructed weirs being often

Plates 2 & 3

SALMON JUMPING AT A FALL OF THE SHIN, SUTHERLANDSHIRE

Plates 4 & 5

SALMON JUMPING AT A FALL OF THE SHIN, SUTHERLANDSHIRE the cause ; while the other salmon enter theriver, when it is comparatively warm, and ascend quickly to the upper water. This phenomenon is easy to observe on the Aberdeenshire Dee, in the latter end of May, when the summer run is at its height.

Salmon leaving the sea late in the autumn, when they are already in full spawning-dress and their ovaries are in an advanced state of development, do not always attempt to travel far. They may settle down just out of reach of tidal water, find a suitable part of the river for spawning and wait near-by, until their time comes.

Lodges are to be found everywhere up and down any salmon-river. They are usually stones of large size, in front of and behind which a salmon finds a convenient place to rest. Their value consists in the shelter they give from the full force of the stream. Occasionally a ledge of rock does duty for the stone, a ledge so flat, that it is difficult to understand how it can bend or modify the flow of the water to suit the salmon. Before the current reaches a stone, either submerged or projecting above the water, it divides and passes just clear of the two sides of the stone, which is guarded all round by an elastic cushion of water. Directly above and below the stone, this kind of fender is extended into two wedge-like areas, in which the water is flowing very gently and in places is stagnant. A salmon makes good use of this cushion by lying upon the bed of the river, so that it is helped by the slackened or the reverse current to resist the stream. If the upstream face of the object offering resistance to the current is bluff, there is in parts of the area in front of it a reversed flow of water. This is the evidence of smoke-photographs taken by the Aerodynamic Department of the National Physical Laboratory (see pls. 46 and 47).

A trout hovers in mid-water. A salmon, if the bed of the river is of gravel, sinks down upon it or rests upon a flat stone ; its weight is supported by the pectoral fins ; the hinder part of its body and its tail-fin remain free-moving, sinuous, almost snake-like, sensitively swaying to every variation of water-pressure. By adapting its position to the turn of the current, a salmon may remain in its lodge for hours by the expenditure of a barely-appreciable fraction of its stored-up energy. Yet it is ready, at the least hint of danger, instantly to get under way and to accelerate to the tremendous speed which produces the most wonderful thrill in salmon-fishing.

There are, however, times when salmon do not rest by a stone, when they seem to prefer to hover in the manner of a trout in a deep shady part of the pool. And, in summer, when the temperature of the water rises, they commonly hover or swim high in the water, sometimes very close indeed beneath the surface.

Salmon, entering a pool in which they intend to stay and rest, occupy the lodges that are untenanted and, for a few days, settle down calmly to watch the stream of life go by.

One May morning, before the sun had climbed high in the heavens, I went along the path that led beside the river, on my way to the pool most likely at that height of water to yield a fish. As I passed the backwater of an upper pool, I was tremendously excited at seeing a solid phalanx of salmon hovering beneath the unrippled sunlit surface. Four abreast they lay and three deep—and there were yet more lying at a lower plane directly underneath them. I lay along the slanting bole of a tree overhanging the pool and watched them until the angle of light became unfavourable for observation. I saw one fish leave its fellows, swim easily up to the surface, gather a tremendous impetus and leap clear of the water. A moment later, it appeared from nowhere in particular and again took up its correct position in the phalanx. As the sun moved toward its zenith, the bodies of the salmon merged into the greyness of the depths, until only a number of slowly-moving white mouths could be observed. I came down early the next morning but one only to find that the shoal had dispersed—and salmon began to rise in the well-known places, where as yet that season none had been seen to show. The main spring run was very late that year.

If the river be running bank-high, so that salmon have a clear road before them, the periodic rests every travelling fish must have are generally taken in a quiet lay-by, such as the inside of the curve of the river. Instead of contending with the racing torrent, they find a gently flowing stream, in which there is no need to look for a lodge.

Should spate follow spate and the river rise to an exceptional height, the usual high-water resting-places will be swallowed up in the general rush of water to the sea and salmon will lie in the most unlikely places. When the fields bordering upon the river have been partly submerged, I have waded where, even in high water, there is a low grassy bank and, in wading in *shallow* water, have trodden upon a salmon, resting barely a yard from the river's edge. On another occasion, a salmon made a grab for a fly, which I had allowed for a moment to hang in the water between me and the bank from which I had just waded. These two experiences have taught me not to risk treading on fish by wading in very high floods, but to fish from the bank and use only a short line.

§ 3. *Low water.*

The river has dwindled until there is hardly any current through the pools. Some of the rocks by which in good salmon-water fish are almost certain to lie, stand lonely and desolate upon the river's edge : others rise up gauntly from the water and often their heads are crowned with grass and flowers, sprung from seeds that have been borne by the wind, or by the birds, and have chanced to fall into cracks filled with rich alluvial soil. The unwisdom of these flowers is no greater than the folly of the moorhen, which will often build a nest in the cleft of a mid-stream rock and back the continuance of the drought to the extent of her third brood of eggs.

Wherever there is shelter, the Canada-weed, pruned no longer by the flow of the water, spreads rapidly ; and flannel-weed clings to every stone, until the river-bed is spread with a carpet of waving green.

As the stream grows narrower, salmon withdraw during the day into the recesses of the pools and show less often at those taking places where there is still depth of water. Yet they keep up their custom of jumping at the hour of dusk and frequently at midday as well, as though a signal were being acknowledged by all the salmon up and down the river. I have sat at the bend of a river and watched the fish in four distinct pools obeying for half an hour or so, at irregular intervals, this strange impulse.

Mr Menzies states he once noticed the same habit among fish cruising in the sea in Thurso Bay. The evening time of jumping in fresh-water sometimes lasts until night has fallen, so that the splash of fish, as they return to the water, comes with rather startling intensity to ears already straining to hear what the eyes can no longer see.

Outside these times, there is not very much leaping, until the fish grow really *stale* or ‘ potted.’ During a late-summer drought, a salmon, as though to get rid of fresh-water lice, or to ease the pressure of the growing spawn (*Secrets of the Salmon*, p. 129), or, quite possibly, to obtain compensation for the lack of oxygen in the water, will be observed leaping almost vertically from the water and returning, on its side or on its back, with a noisy smack. Or it will ricochet over the surface of the pool in several skips, as a flat stone will do if it is thrown with a spinning motion and parallel to the water.

Shortly before the evening rising-time the fish become very restless and often swim at a great speed up to the neck of the pool. It is rather uncanny to see the V-shaped ripple, now straight, now wavering, of an invisible fish, or the following wave, reminding one of the curving water behind a fast launch.

At the head and at the tail of a pool, in the fast-running stream, there is more oxygen contained in the water ; a fish makes use of this fact, when the river is low, by going up to the thin water and the stickles, where the pool begins, or by dropping down until its tail is hanging over the edge, so to speak, and within the rough water below the draw of the pool Aeration in a river is all-important : one of the deadly effects of pollution is the absorption of the oxygen contained in the water. Pollution is, therefore, less harmful to fast and well-aerated rivers than to those which are sluggish ; and more harmful to any stream when it is very low than when it is at its normal height. It should be remembered that the surface-area of water, that is the surface of water coming in contact with the air, is the most important factor. Other things being equal, a river twenty feet across and six feet deep contains less oxygen than one thirty feet wide and four feet deep, although their volume is approximately the same. This is because the latter has a larger oxygen-collecting surface.

§ 4. *The glory of the spate.*

Late one afternoon the wind, which had been inconstant throughout the day, succeeded in gaining the west ; the air grew warmer, almost to thunderpoint ; the clouds for one moment lifted and the sun shone through. But the sheep upon the hill-side lay low and the swifts flew close to the hedgerows. Then the clouds dropped and hung heavily upon the hill-tops ; and the rain fell steadily in the gathering darkness. Or, perhaps, as yet there has been no rain in the valley. A man from the hills has told us of it ; or we have seen it in the distance as a vast veil of greyness, hung in a moving heaven, so that it sweeps gently over the screes, the bogs and the mountain ploughland, the grateful upturned face of the earth. All we know of it and much more is already old news to the salmon. As soon as rain is in the offing, the salmon in the pools become restless and often will not look at a fly. Conversely, this persistent refusal to rise is frequently taken as a sign of the coming of rain.

Then comes the spate. To a salmon this must seem like the opening of prison bars, as it sets forth on another stage of the journey to the spawning-beds.

Whether the river rises slowly or, adding two feet or more to its depth in the space of an hour, quickly becomes a raging torrent, the first signs of it are the tiny arms of water, stretching out between the boulders and around the grass hummocks to retake the lost territory. The river's edges advance haltingly, pile up until a sort of convex wall is formed and then reach forward, like drops of water upon a dry sloping surface, which hesitate and deepen at their lower edge, before they decide to run. This is a most useful sign of rising water that all fishermen should know. On every shingle-beach the water, still clear, will soon cover a strip of stones, bleached by the sun ; this also is a sign of a stream beginning to rise.

The flood grows and carries upon its bosom the vanguard of river-flotsam : small logs of wood, bottles, cans, tins and other disfiguring garbage, thrown into the river when the bailiff's back has been turned, are also brought nearer to the sea. The water thickens and assumes a grey-yellow colour when the road-washings come into it ; a turgid yellow or red (according to the soil) when banks crumble and are swept away ; and a reddish-yellow when it is stained by mountain peat-water. Then the débris comes down from above : branches of trees and posts, arms of elm or ash and even the trees themselves. Sometimes dead pigs float down, legs uppermost ; hens, more than usually foolish, and lambs or sheep, that have died high up in the mountains, are lifted by the rising tide and carried away. All these and much besides go racing seawards.

The flood reaches its height, remains there for a short time and marks its highest level with a line of flotsam : small pieces of wood as thick as pencils, fir-cones, chips of bark, corks, the refuse of domestic life and occasional slips of a fungus, known as tree-sponge. The pressure of the water from above grows weaker, the river gradually subsides and, becoming less turbid, *fines* down to high clear water of a greyish colour, in which there is still much sand and sediment in suspension. Or, if the stream has been stained with *black water* from the peat-hags, it turns to what is known in Ireland as *porter ;* and foam sailing downstream gathers together to form large *bergs* in the backwaters. Later on, this water clears and turns to dark claret with a bluish tinge ; and, as the last of the foam is being drawn away by the current, the river runs a pale-brown sherry.

All that has gone before is but a poor attempt to paint in words the full wonder of a river in flood, when the pent-up water of the clouds has burst upon the uplands and races majestically onwards, divided by the arches of the bridge and yet united in its purpose. A spate is full of soft music, but its streams are dumb ; it takes the weir in its stride and glides evenly over, down, down, always down to the sea, its mother. And, with the passing of time, a river in flood carves its way where it will and bears down in its arms the mountain-granite to grind out the salmon-pools. And the valley is deepened. This can be seen along the banks of most fast rivers and in many places. Every year the pools widen, a little more and a little less, until the river finds a fresh way out and the old river-bed is deserted for the new.

§ 5. *Of passing weirs.*

If, and the river is still high, Sunday happens to be a *dies non*, it is always worth while watching the fish, as they negotiate falls or pass over a weir, should either of these be close at hand. Salmon know at least two ways of getting over an obstacle : by leaping into the air, hoping to strike the crest of the falling water, or by swimming straight up and over it. A salmon needs depth of water from which to take off. I used to think this would allow it to get up speed for the final effort, until I was fortunate enough to observe the whole process *ab initio*. The salmon was lying at a depth of about four feet. It swam slowly forward, turned up gently and then, by a tremendous effort of acceleration, launched itself out of the water. There was skilful timing and great judgment in estimating the exact distance to the surface. A comparison has been suggested to me of the salmon's leap with the easy run-up and sudden muscular effort of a man taking the high-jump.

From May onwards, there is a very good chance fish will be found attempting to jump a weir, if there is enough water flowing over its edge for their tails to grip. A salmon leaps at the edge and at that point, if all goes as it should, the tail and body enter the water again ; then with a flick of the tail it is away. But a salmon is not always in luck. Many times it may rise from the boiling caldron, in which we can but marvel any fish is able to control itself, far less take off for a leap. Often it fails entirely in its judgment of the distance, strikes the falling water at an awkward angle and is washed back into the maelstrom below. I have watched the same fish (unless all three of us, watching the fish, were mistaken in our identification) try, every half-minute or so, for quite twenty minutes, to surmount a vertical fall, once swim across the face of it for a short distance and, at last, drop down to the pool below, beaten. We imagined it would there think over in peace the theory of passing weirs, while recovering from the severe handling it had received. That salmon was rather foolish, because there was, without leaving the main current, an easy way round by a cascade ; but nothing would please it except to attempt the impossible by jumping at the edge, when the water was far too strong. Foolish is not too hard a word, because it is well known that salmon are before the first (if that were possible) in discovering where the most powerful current runs : a fact that may be of great help to those who are trying to improve a river.

The other method is regularly used to ascend the falls of the Morar, which are six feet in height. There is no way round for any fish, except eels, which have been seen wriggling round by the path. When a spate comes down, salmon take advantage of the volume of water going down over the falls, swim up the vertical column of descending water and disappear into the upper river. During the ascent they may be seen as a dark streak working their way up inside the waterfall ; when they reach the top they show no more than a flick of the tail. The ladder of a weir is taken in the same way, but the ascent is very much easier, so that only in the thin broken water can the long black snake-like backs be seen and occasionally a moment's view of the whole fish be obtained, as it leaves the topmost box in the salmon-ladder to complete another stage of its journey.

§ 6. *More about travelling.*

What does the salmon do with the liberty the spate has restored to it? It is very difficult to say accurately what does happen. Instead of the low pellucid water, there is an opaque curtain, beneath which the fish are hidden from view. When the pressure of water reaches a certain mark, it may be the salmon leaves the pool, confident of finding an easy way over any obstacles lying in its path. When rainstorms swell the river, the temperature and the aeration of the river-water is increased. Either of these changes seems to me a likely influence in urging the salmon forwards. I have heard salmon-fishers of long experience say travelling does not start until the river has been in spate for twenty-four hours; but it is not easy to see how, in view of the state of the water, such an opinion could have been founded on accurate observation. But, if the fish have been so long in the pool that they can be recognized, it may be possible to say this fish or that is still there, although the flood is already one or two days old. Whenever a chance of this kind has come my way, I have watched very carefully all the fish showing in the pool I was fishing and have found old salmon less inclined to move up than the new-comers from the sea. At any time after midsummer, when the river has come back into good order and there is high salmon-water, old sophisticated fish, that have moved up somewhat under protest, settle down almost gratefully into the new pools. But the late-running fish, to whom river-life is still a new delight, continue travelling for, perhaps, another day and a night.

Stale fish get very lazy in summer; and I believe it takes a high flood to persuade them to go to the pools above. Some ancient tenants, after a small spate has passed over them, will often be discovered, when the river is again normal, to have remained in their original quarters. Of this there is no definite proof; but an opinion formed from seeing fish of the same size and condition show in the same place, in the same way and, possibly, at the same times is better than no opinion at all.

Under cover of the spate the fish have, sooner or later, got away from their old lodges and in travelling show very little between the pools. If you sit and watch a pool when salmon are running, you will soon realize there are fixed points at which they show. I do not mean rise in the ordinary sense of a fish jumping in its own settled pool; there is a broad leap forward from the water and always nose to stream, as a very determined porpoise might do. You will often be able to follow the progress of a fish, as it passes through a pool. A jump from the trough of the rough water, where it leaves the *draw*, is followed by another in the lower part or *tail* and so on through the pool at one or more different points, marking the progress of the fish. If a practice is made of watching salmon running in a spate, it will soon be realized how often this happens. Occasionally a doubt may be felt that this is, after all, an illusion, produced by a series of salmon of like size and condition. That may, at times, be true; but balance against it what you see, if you watch at the tail of a pool, from which the stream leads out to strong water below. One, a second, then a third salmon rise in rapid succession as they meet the fast current. There is no doubt they are three individual fish: they are different in size or in colour, one from another. Moments pass as the salmon work their way up the rough water, at last the sill of the pool is crossed and the fish rise in the *tail*, probably in the same order as before. How often have I been fishing at the narrows of an eight-shaped pool and waited for a group of fish I have seen rise in the rough to show in the *tail;* and, a minute later, one has jumped out almost under my rod-point. The top of rough water below a pool, the tail of and definite spots in a pool and a bend in the river are also places where travelling salmon may be expected to show.

A delightful explanation of the salmon's frequent habit of rising at a bend of a river was once given to me. They jump into the air merely to find out the way to go ! My informant went on to say the eye of the salmon was provided with three lenses ; one for seeing through clear water, a second for use in dirty water and a third with which it could see in the air. I shall never know whether he was half as serious as I tried to be ! It often happens on very high water that salmon slip over a weir without showing ; but, as the flood ebbs, it is very common to see them, at irregular intervals, trying to get over obstacles in their upward path.

§ 7. *Spawning-dress.*

Autumn means to a salmon-fisherman the end of a season : to most salmon it is the end of life and its beginning. The salmon, game to the last, takes no risks with the future of the race and assumes a spawning-livery, which is a most efficient protection from its natural enemies in the upper streams, although protection may not be the true reason for its adoption.

The colour of the male fish gradually changes until the greater part of the flanks is a dirty red and the belly is grey and yellow. In this condition, it is known on Tweedside and elsewhere in Scotland as ' soldier.' The snout grows considerably longer ; and the lower jaw acquires an upturned hook or kype, formed of cartilaginous tissue. The hook is so pronounced in some fish, that it almost penetrates right through the corresponding recess in the point of the upper jaw. The kype seems to be a male characteristic of the breeding-season and to have no real function. As a weapon of attack or defence it is useless and is a handicap, because it prevents the jaws from closing. Nor is it of use in digging up the gravel, when the spawning-bed is being constructed ; this work is invariably done by the tail of the female, either by fanning or by digging, probably the former.

The skin of the male thickens and changes in consistency to that of leather ; and the scales become increasingly difficult to dislodge. A male fish I took in the Chester Dee on October the 3rd, had already so thick a coating of this yellow skin over the scales, that to examine them I had to remove a small piece of skin from the back of the fish, only to find an advanced stage of scale-absorption (see pl. 90 and p. 403). There is a photograph of this autumn salmon in plate 16. It will be noticed that the head seems to have grown longer and uglier, that the handsome arch of the back has disappeared ; and that there is no depth in the body in the region of the pectoral fins. The reticulated markings above the median line were bright red, as were the wavy lines on the yellow lower flanks. Yet I hooked this fish when it was making a second attempt to secure a fly that was hurrying across fast water.

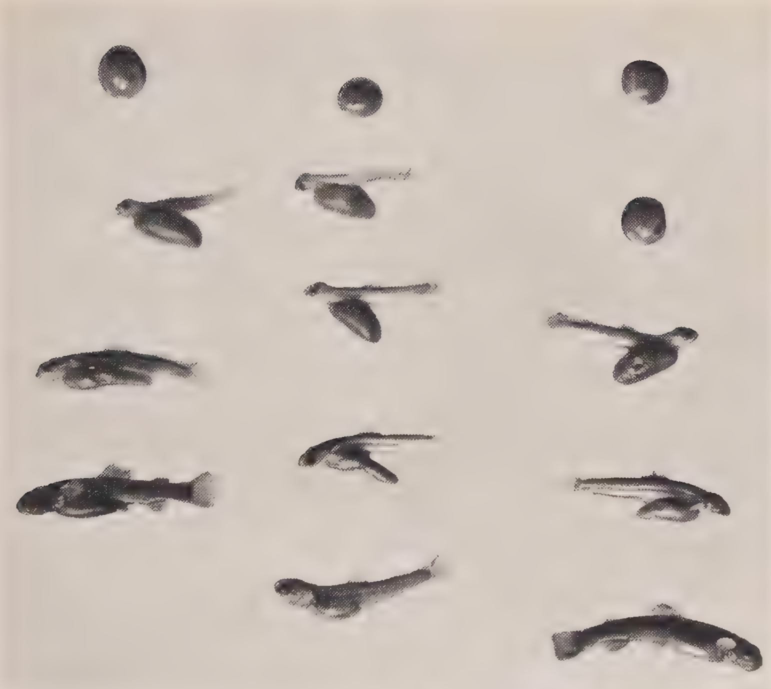
While the males are turning copper and red, fish of the other sex are gradually assuming a dirty black coat ; but otherwise the female fish alters little, except in the steady expansion of the abdomen, due to the growth of the *ova*.

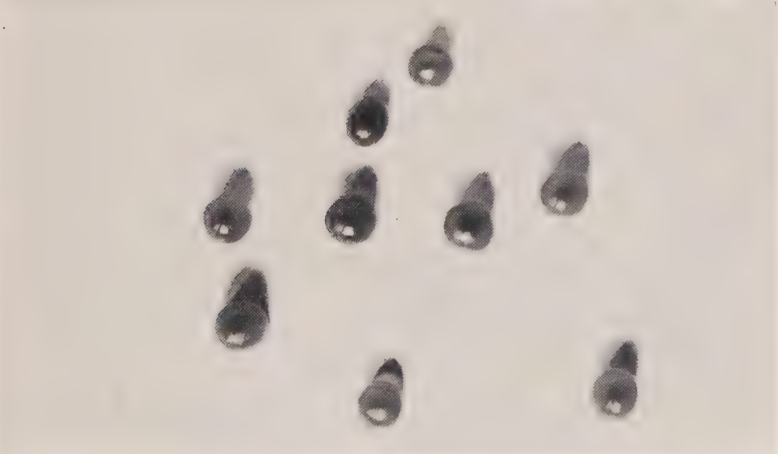
The spawning-coat is not exclusively a river-change. When migration to the river has been either postponed or, in times of drought, very much delayed, the fish start turning a copper colour in the sea itself. Mr Menzies states he has been able to compare salmon, waiting in the sea for running-water to enter the Thurso river, with the later arrivals. The older fish, their coats slowly turning to copper and red and black, had already begun their period of fasting and were proved to be losing weight : the new arrivals from the feeding-banks still wore silver and *had food in their stomachs*.

When the first leaves are coming down the river, sometimes before that, the early fish have reached the upper waters in which they intend to spawn. They choose stretches of gravel in the shallows over which the stream runs rapidly and withdraw to a quiet pool above or below the spawning-ford, until they are brought on to the redds by the first frosts of November. The selection of spawning-sites appears to depend on several factors. Gravel beds are chosen that are not swept by the full rush of winter floods and are formed of stones, heavy enough to resist the current of a considerable stream, and yet light enough to be moved by the current set up by a salmon's tail ; although far less effort than is needed in the air will move objects in the water (see p. 29). The choice of a bed of fine gravel is unusual ; as far as I know, sand is never selected, because oxygen cannot circulate through it and the eggs are smothered. The stream flowing above the gravel-bed should be lively enough to distribute the milt, so that the speedy fertilization of the eggs is assured and to provide the aeration essential to their well-being.

I am indebted to Mr Menzies for his confirmation of the above ideas and for his permission to quote his summary, which explains the observed variation in spawning dates. ' Were the salmon in all districts of widely differing geographical conditions, as well as those in waters of varying temperature in different parts of the same district, to spawn at the same time, then, if the time of spawning were what we now regard as early (November), the alevins in the southern rivers (of Scotland) would hatch out before the winter conditions had completely departed. If, on the other hand, the universal time of spawning were January, the northern rivers would be in some danger of being ice-bound, and the *ova* would still be in the incubation stage in the month of May.'

Although the fall of the leaf is the recognized period for salmon to be on the spawning-redds, the earliest regular time after the season is about the middle of October. The spawning-month for the Herefordshire Wye is November. On the Chester Dee, salmon are expected on the redds when the first keen frost is felt in the early part of the month of November. From Mr Chaytor's book I learn that the fish of the Tyne are still spawning at Christmastide ; and Major Dawson records December as the time when the moorland salmon of Devonshire are ripe. Under special circumstances, the period of spawning is extended into the month of March.





Plates 6 & 7

Top: *OVA*, EYED *OVUM* (THE FOURTH) AND PROGRESS THROUGH THE ALEVIN-STAGE TO FRY

NOTE THE UMBILICAL SAC IN THE ALEVIN. (LIFE-SIZE.)

Bottom: OVA, SOME OF THEM SHOWING THE EYE

(LIFE-SIZE.)

Plate 8

SALMON SPAWNING

CUTS FROM A FILM SHOWING RED SALMON ASCENDING A RIVER IN ALASKA; AND SALMON LYING DEAD AFTER SPAWNING, AND ALSO MASSES OF EXTRUDED EGGS, WHICH ARE NOT COVERED UP AS ARE THOSE OF THE ATLANTIC SPECIES. (SEE PAGE 50.)

CHAPTER TWO

LIFE-HISTORY (*continued*)

§ 1. *Of spawning.*

WHEN the time for spawning has at last come, the fish move in pairs to the spawning-grounds; the female, turning upon her side, violently flexes her body in an effort to expel some eggs, until a small hole has been washed out and a ridge of displaced pebbles has been formed downstream, possibly, as a buffer to the *ova*. I think gravel is probably turned up by the swirling current induced by the flexion of the female salmon's tail; in other words, it is fanned (cf. Chaytor, p. 226). Although this hardly seems, at first, an adequate explanation of the removal of large pebbles, we must take into consideration the reduction in their weight, due to immersion in water, and the tender nature of a salmon's tail. A gillie may enthusiastically say a fish has a tail like a shovel; but it's a poor digging instrument for all that!

While she is doing this, the male often has to chase away, by rushing after and occasionally grabbing hold of others of his own sex. These intruders are salmon, seatrout, or even brown-trout: the interest of the last two is dictated by a desire to eat the spawn, as it is borne on the current. I very much doubt the current belief that unspawned seatrout and trout will sometimes take the place of male salmon in fertilizing the eggs. The presence of brown trout is amply explained by their Tweedside name of 'rowan-gatherers.'

The female salmon continues flexing her body and simultaneously allows a few eggs, which are specifically heavier than water, to be extruded; these are swept along with the displaced gravel, until they sink down to the foundation of the redd. After she has given a few flexions of her body, the male takes her place and sheds a little milt, which is carried downstream to fertilize the *ova* already deposited. These eggs are pink, when they are extruded, but turn to a milky opalescence as soon as they are fertilized. The alternate shedding of milt and eggs goes on for some time, until a considerable heap of gravel has been raised, hidden in the interstices of which are a large number of fertile eggs. The fish then drop down to a pool to rest before resuming their task, which is completed within a week to ten days, according to the size of the fish.

Malloch stated he had known a small spate so disturb fish in the middle of spawning, that they have left their redd, gone higher up and started again. This is of little consequence to the eggs left behind; but it is quite likely the new redd will be left high and dry, as soon as the water recedes and the river runs again at its normal level for that time of the year. If this should happen, the eggs within it are sure to be destroyed.

I have seen salmon spawning only in the daytime; but the bailiff who accompanied me one crisp November morning to the redds said night-time is the most intensive period. This is true of other rivers. The poacher, aided by his light, is thus afforded an easy chance of gaffing salmon, as they lie in water sometimes so shallow, that their backs are not covered ; while the females are easily spotted by the noise of the splashing they make during the process of depositing the eggs.

Oviposition lasts for some days. When the eggs of the female have been extruded, she drops down to a lower pool, leaving the spent male near the redd. How long he remains there is uncertain ; but, at length, he, too, leaves and sinks tail-first down the river to almost certain death. If, however, either of the two salmon has been able to outlast the other in the provision of eggs or of milt, that which is only partly spent takes on a fresh mate.

Salmon lose about forty per cent of their weight in the task of spawning, so that it is not surprising only a small number of females and very few males survive (pl. 8). They die of exhaustion ; they lose control in the current, are washed away and drowned ; or they are attacked by salmon-disease, when they are least able to withstand it. Female kelts, for some reason, have a better chance of returning to the sea and of coming up again in good condition. On plate 93 there is a photograph of a scale taken from a salmon, caught by Mr G. H. Nall in Loch Maree, which had spawned four times and was ripening to spawn for the fifth time. And in Mr Griswold's *A Salmon River*, a scale is figured that was taken from a Moisie fish on its way to spawn for the fifth time. The Moisie flows south through the eastern part of the Province of Quebec into the Gulf of St Lawrence, about one hundred miles west of the eastern point of Anticosti.

Mr Hutton mentions in his *Life-History of the Wye Salmon* that, out of the 15,000 fish he had examined, 969 had already spawned once, 83 twice and only 3 were coming up to spawn for the fourth time. Out of the 1055 previously spawned (or S.M.) fish, only 83, or one-half per cent, were males. On the whole, the figures of fish returning to spawn a second time are much better in Scottish rivers, otherwise the kelts would not be worth protecting. Scales taken from the salmon of the west coast of Scotland show there is a greater tendency for these fish to return more than once. The easy and short downward path is probably the cause of the difference in mortality between them and the east-coast and Wye fish.

The name *kelt* is used to denote a rough frieze-coat of natural black sheep's wool ; this may or may not be the same word. The Irish term for the spent fish is *slat*, a word regularly employed to describe thin strips of wood, such as those in Venetian blinds and in the foundation attached to a wall before plaster is put on.

Rawner, baggot or shedder is a name given to female salmon that do not shed their *ova* (pl. 10). They may be found in good condition as late as the summer following the autumn when they ought to have spawned. Why this happens no one knows ; but, as Mr Menzies has found they can easily be stripped by hand of their eggs, there is clearly no physical deformity to account for the withholding of the spawn. Were these fish unable to find a mate ?

My latest visit to the spawning-beds made me think rather deeply about the strange happenings at this point in the life-cycle I had just witnessed. What would be the fate of those fish that later would spring, as though by magic, from the redds ? I knew some of them would survive to migrate, past the stretch I might then be fishing, to the sea, ninety miles away. I knew the snow upon the shoulders of the distant blue-grey mountains would melt and be renewed four times before the vanguard of this new life would return to play their part in the same stream in which they had been hatched.

This is an outline of the story of the salmon's ascent into the hills, its *Anabasis*. There remains the life of the kelt and of the salmon upon its second return from the sea, before the story is taken up again in the next chapter with the *ova* lying under the redds.

§ 2. *Kelts.*

When the female salmon has finished spawning she drops down into quiet water, but the male fish remains near the redd for an unknown period of time and for an unknown reason. Apart from what has been observed, there is the evidence of netting, which has shown that many of the males stay for a considerable time near the redds and alone. To say a male is mounting guard over the eggs is, perhaps, more descriptive of his attitude than of his purpose, because it is not quite clear how the *ova* could be protected, if another pair of salmon wished to use the same redd. The hope of obtaining another mate may induce a large partly spawned fish to hang about the spawning-grounds.

When the females have already started to recover in quiet pools not greatly affected by floods, the males are still drawing upon their diminished store of energy in keeping their position by the redds and are exposed to the full force of the sudden spates, which so often sweep away the kelts to their death. This may be one reason why, in most rivers, males on their second return from the sea are far rarer than females of the same class. Spawning appears to exhaust the male salmon more than the females. Extreme exhaustion due to this and to spasmodic fighting with other male fish is quite enough to account for the high rate of mortality.

But in short rivers, such as those flowing to the west coast of Scotland, the presence of a far greater number of previously-spawned male salmon is attributed to their having been able, as kelts, to make a rapid and less arduous descent. It has been mentioned above that a few fish entering the river very late in the autumn spawn just above the tideway. If the males of this run were able to get back to sea again, they would be numerous enough to provide far more frequent examples of previously-spawned fish than have been observed, the high percentage of sea-mortality notwithstanding. It seems that a difficult return to the sea is not the only cause of death ; the physical strain on the males must be much higher than on those of the opposite sex.

The downstream progress of the kelt is irregular. In the larger rivers, all classes of fish descend more slowly than in small or short rivers. But it is unusual to retake a grilse-kelt which has been marked, because this class returns very rapidly to the sea. This quick return to salt-water makes it possible for some of the class to recover weight and condition soon enough to be able to ascend once more to spawn, after an absence of about six months. A few fish of other classes, which have been among the first to spawn, are able to do the same. This speedy descent to the sea reduces the risk of death from salmon-disease.

When the kelt has improved a little in condition and is assuming the bright coat of a well-mended fish, it is not affected so much by the force of floods like those which earlier in the season had overwhelmed and sent to destruction so many spent salmon and had washed their carcases in hundreds upon the river-strands. It has recovered in some measure the power of controlling its movements, so that it can take shelter from the spate, and only when the river is running quietly does it allow itself to drift downstream, always keeping its head to the current. But it turns and swims down through the slowly-running stretches, where little effort is needed to go fast enough to make a current of water pass from mouth to gills.

The spawning-dress is soon discarded for a new coat, not exactly of silver, but of bright tin. By this difference of colour, by the lack of depth and convexity in the back and belly, by the ragged edges of the fins (especially of the tail-fin), by the open vent and by the presence in the gills of freshwater maggots a bright well-mended kelt can, with a few exceptions, be distinguished from a fresh-run spring fish. The latter has only a few or no spots on the gill-covers, a brilliant silver coat, a cream-white belly, a broad opalescent blue band in the region of the median line. The presence of gill-maggots is not conclusive, because clean salmon soon acquire a number of these parasites.

Fishing in the early spring often brings a series of disappointments, kelt after kelt being hooked before a clean salmon is landed. These spent fish take the fly or the lure far more readily than do spring fish, although they are known to feed but rarely in fresh-water : the absence of new rings upon their scales, the loss in weight during the descent of the river among kelts weighed near to the redds, caught lower down and weighed again, as well as autopsies, which show the presence of food in a kelt's stomach to be unusual, are evidence that regular feeding has not yet been resumed. And for the safety of the young stock of the river it is well that the wakening hunger of the kelt is not fully indulged until the marine feeding-grounds are reached.

Kelts marked in a pool have been taken in the same pool a month afterwards ; such fish, and they are by no means few, are very deliberate in their movements ; but, at length, even they find conditions to suit them, so that about the end of April most rivers are clear of these fish, which by then are probably well-mended.

Thus the sea welcomes back again the travellers of whom the net, the rod and the poacher, the spawning-redds and fell disease have taken fearful toll and offers them a second time and without stint the richness of her store.

§ 3. *Salmon on their second return.*

A short *résumé* will be found on page 42 of what is known of the marine life of the maiden-salmon and of the kelt that has succeeded in regaining the sea : this covers the period between the entry of the fish into salt

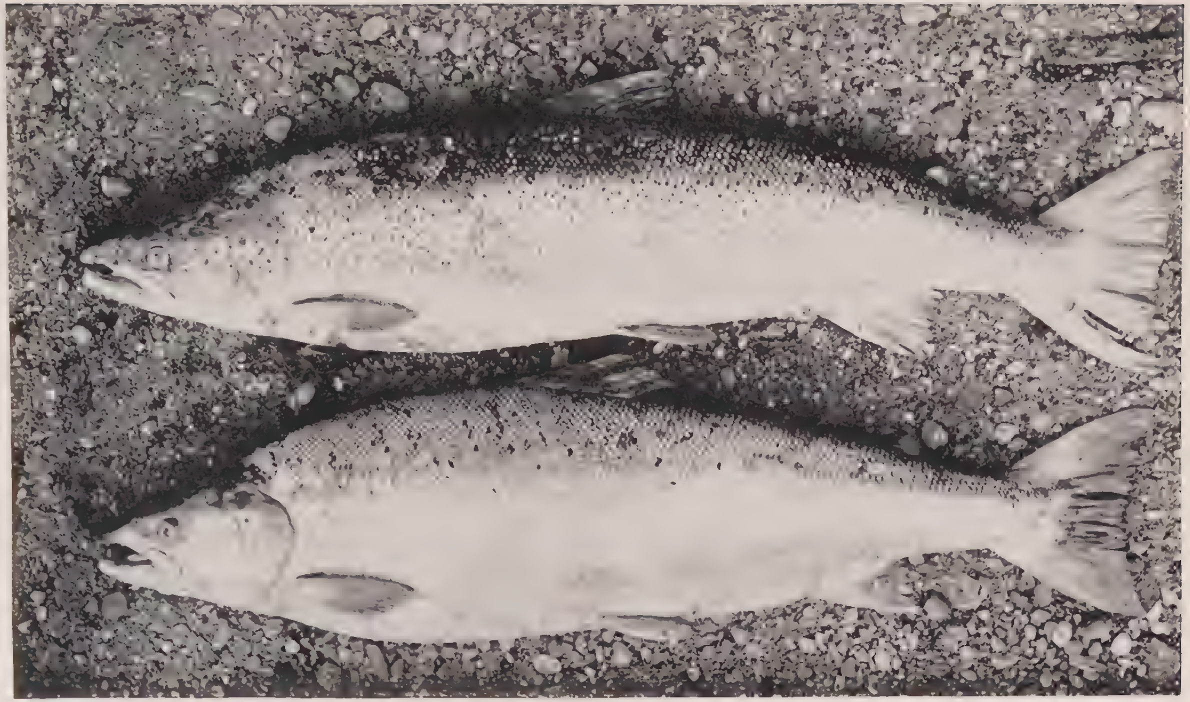
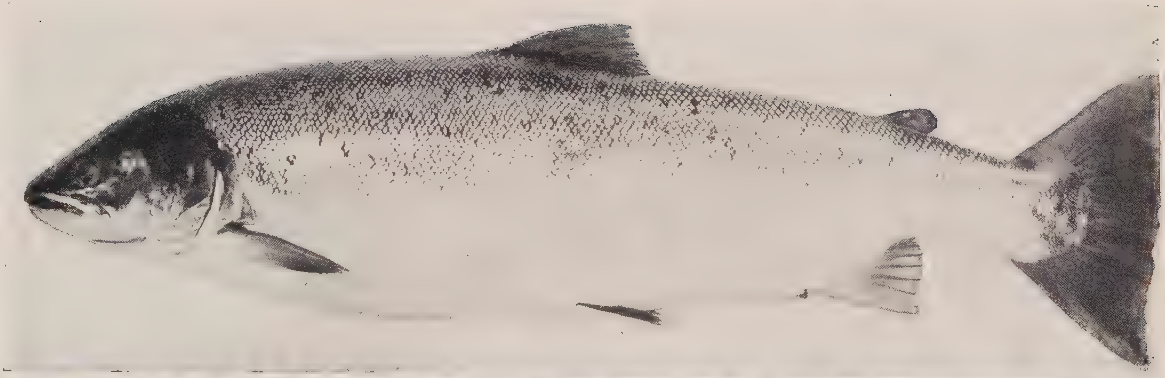
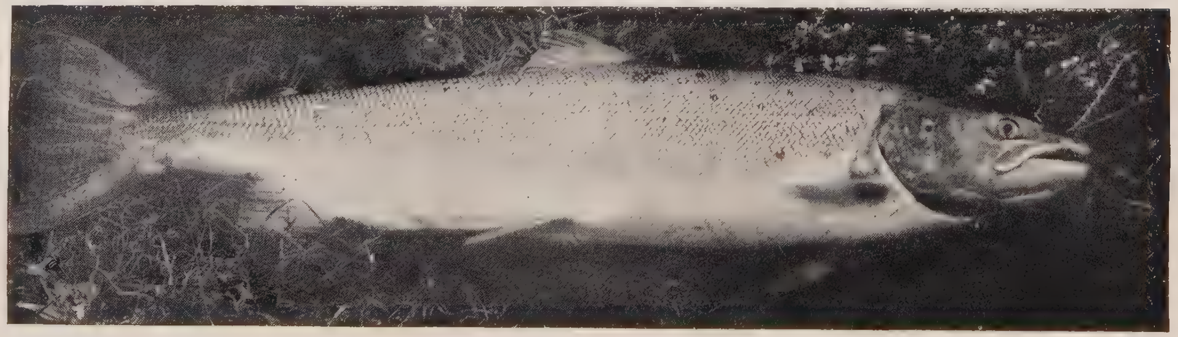


Plate 9

BODY MARKINGS

ILLUSTRATES THE DIFFERENCE IN BODY-MARKING BETWEEN A SALMON THAT HAS SPAWNED AND IS ON ITS WAY UP THE RIVER FOR A SECOND TIME AND (LOWER) A MAIDEN FISH. IN THE FORMER THERE ARE MANY SPOTS ON THE GILL-COVERS AND IN THE REGION *BELOW* THE MEDIAN LINE.





Plates 10 & 11

A RAWNER OR BAGGOT

THAT IS TO SAY, AN APPARENTLY RIPE FISH THAT HAS NOT DEPOSITED ITS OVA.

A FEMALE KELT OR SPAWNED FISH OF 14 LBS.

waters until some strange impulse and the desire to breed compel it to return to the fresh. How long a kelt remains in the sea before it comes back as a clean fish to the river is a question to which the study of scales has enabled us to give a definite answer. Some fish return to spawn for a second time during the summer of the same year in which they went down to the sea as kelts. They have fed for only a few months, but this has been long enough to restore them to condition, to enable them to increase in length and weight, and to allow a partial development of the ovaries, which had started to form again very shortly after spawning : others stay on for a year and even longer. The rate at which kelts recover condition and increase in weight after their return to the sea varies considerably. This has been found out in the following way. A net was put through some pools in the upper reaches, and the spent fish they contained were marked. These were released and a few of them were subsequently recaptured, within a fortnight or so of each other, as clean fish. It was thus shown that salmon approximately equal in weight as kelts may differ greatly in that respect, when they have returned to the fresh-water to spawn again after an equal period of absence. This is due, in some instances, to the fish that later grew to be the heavier having made a speedier descent to the sea and having, therefore, enjoyed longer and, possibly, more successful feeding.

All salmon that survive to return to the river for the second spawning do not spend a like period in the sea. Some return after six months and are known as short-absence fish ; others stay for a year, the long-absence fish ; there is yet a third class, the very long-absence fish, which spend a year and a half before revisiting the river. Examination of the scales is the only accurate way of distinguishing them (see p. 405 and pls. 82–91). Short-absence fish are believed to be those which have made a rapid descent to the sea, perhaps after spawning very early in the autumn. This leads one to expect examples of annual spawning to occur more frequently in the small than in the long, often difficult, rivers, such as the Tay. There are, also, a few salmon that spend two years before returning to spawn again ; but this is very exceptional.

Previously-spawned salmon, known as S.M. (spawning-mark) fish, that descend to the sea in spring or early summer clearly have no chance of returning earlier than the late summer or autumn, that is, after a spell of feeding or growth. There seems to be a tendency for fish that spawn more than once to adopt the same ‘ habit ’ every time, that is, for a fish that spawned first as a grilse to return to spawn for the second and the third time after short periods in the sea. It is difficult to say more than that, because erosion makes the reading of the scales somewhat untrustworthy and because there are so few examples of fish with more than one spawning-mark (see p. 405).

§ 4. *The awakening of new life.*

It is lonely up there on the spawning-fords when winter’s chilly hand is on the river : lonely and deserted. With their crests sometimes awash, so that the course of the stream is altered, the redds stand solidly, as though raised up to mark a day to be remembered, a day when a new strand was woven in, that the cycle of life might not be broken. But within those naked cairns, as within the hard black buds of the plane-trees in all their winter starkness, the new life is waking from sleep and will grow miraculously, until it bursts forth into its own kingdom with all the splendid joy and perfection of youth.

Nature sows widely that her children may survive : the greater the risk of the extinction of the race, the more liberal is the hand that flings the seed. A female salmon deposits eight to nine hundred eggs for every pound of her own weight ; that is, a twenty-pound fish produces sixteen to eighteen thousand eggs. Yet the loss is so great through disease, misadventure, violent death, starvation and the claims of net and rod, that out of all these eggs only enough salmon survive to ascend the river to spawn and thus maintain the stock the river will support.

When *ova* are fertilized in a hatchery the loss in eggs through sterility or accident is negligible ; but, under natural conditions, there are many eggs that are not touched by the milt ; while many that are fertilized do not find a place of safety beneath the stones and are taken by trout, which are often observed hovering below the redds at a time when salmon are spawning. The dipper, the jolly bird that sits on stones, bows to you, takes its neat little plunge into the water and, on reappearing, is presently to be seen gaily flitting over the river, is not the thief of *ova* some would have us believe. As far back as 1872, Knox disposed of that unjust accusation and showed the food of the bird to be caddis, *larvæ* and water-beetles, such as *corixæ*.

There is a possible danger of the gravel used by early-spawning salmon being turned up again by late-comers, so that many of the *ova* are uncovered and washed downstream to their deaths. Unless these eggs have already reached the ‘ eyed ’ stage, it is no great odds what happens to them and the trout might as well have the benefit, because *ova* disturbed in early life are almost certainly doomed. Heavy frosts may destroy them indirectly : the river may freeze down to the top of a redd and, on breaking up in a thaw, carry away as a solid mass the ice-floe and part of the redd beneath it. The eggs that remain lose some of their protection ; and even if those concealed within the upper part of the redd could support low temperatures of thirty-two degrees and under, there would be little chance of their surviving in the exposed positions into which they would sink, after the gravel that protects them is released by the melting of the ice. But far fewer redds are washed away by winter floods than might be supposed. The spawning-beds are generally constructed in spots unaffected by the full force or by the wear of the swollen current. This selective capacity in salmon leaves one gasping in amazement that instinct should teach them how to act in such matters.

Three weeks or a month after the eggs have been fertilized the eyes of the embryonic salmon can be seen as two black specks within the shell (pl. 7). In this stage of development, the eggs are known as *eyed* and they can be handled with safety and sent away, packed in layers of damp moss, to distant rivers, not only in this country, but on the other side of the world ! When *ova* are being shipped to New Zealand or to Australia it is important that the eggs should not hatch out prematurely ; this is done by keeping them in a temperature a little above freezing-point, so that their development is retarded. Mr Menzies quotes an incubation period of a hundred and sixty days for salmon *ova* in the

Thurso hatchery, when the mean temperature of the river had been thirty-four degrees. As a contrast with this he records an example of incubation in a warm river, the Beauly, of ninety-five to ninety days in river temperatures varying from forty-two to forty-five degrees; and during an exceptionally mild winter a period of only seventy days. If Great Britain is considered as a whole, ninety days is the mean of the incubation period for salmon-eggs.

Salmon and seatrout eggs are prevented by the temperature of the water from hatching, until the river is warm enough to contain a supply of food; the necessity of hunting for nourishment is further postponed through the provision of a food-sac: otherwise it is probable the race of salmon would pass completely from the inhospitable rivers and survive as an abundant species, only where physical conditions were decidedly in their favour.

The young alevin (pl. 6) when it bursts tail-foremost out of the shell is barely an inch long. Those alevins which have been observed in a hatchery to have put their heads first out of the shell have not long survived. Another cause of early mortality is monstrosity. Alevins with two heads, with two tails, or with two bodies, connected by the umbilical sac, occur regularly when they are hatched out under artificial conditions. Probably the strange deformities in seatrout and brown trout that occasionally find their way into the fishing-bag are due to damage, serious but not fatal, inflicted on the fish during its embryonic existence.

The eyes of an alevin are as absurdly large for its body as are the legs and feet in a colt: the body is translucent and salmon-pink in colour; and the fins, with the exception of the free-moving pectoral fin, are undulating fringes along the upper and lower edges of the body. An umbilical sac hangs down from the under part of the body, near to the throat; this sac contains nourishment for the young alevin for the next fifty days, during the first eight of which the fish remains in a dormant state, hiding from the light and from its numerous enemies.

As soon as the sac is absorbed, the young fry is thrown entirely upon its own resources; it hunts actively for food and in doing so takes very serious risks. Life from now on until the smolt-stage has arrived becomes a tense struggle against many foes; and the fry in the lower reaches have more reason to fear the black-headed gull than their other numerous enemies. Safety lies in the exercise of natural agility and in the protection at first afforded by its transparency and later by the seven, eight, or nine finger-marks which are characteristics of salmon and seatrout parr and of young trout (fig. 1, p. 52).

Until late autumn has passed into winter and the season of scarce food has set in, salmon-fry spend most of their days in hunting, not in shoals as do young seatrout, but alone. At this period of their life, they are generally known as parr and have grown to a length of two or three inches. Their rate of growth depends, in some degree, upon the abundance of food in the river and upon the competition they have to face with the young seatrout, which are said to be far more active in their search for insects, *larvæ* and other small forms of life. But there are other factors controlling the rate of growth. Young and small parents produce small eggs; from these emerge small offspring that exhibit a slow growth-rate. Even in hatcheries, the progeny of vigorous parents grow at diverse rates. Mr G. H. Nall kindly sent me the following extract from the manuscript of page 227 of his great work, *The Life of the Seatrout*, which has recently appeared: ‘Recent investigations in Sweden on salmon-fry seem to indicate that, if food conditions are the same, the dominant factors are temperature of water, and length of summer, not heredity. In the south of Sweden the temperature is higher than in the north and the summer longer; and the salmon parr in the rivers of southern Sweden grow more rapidly and migrate at an earlier age than those of the north. To test the relative value of the various factors, a batch of ova from a southern river were hatched and the progeny reared in a northern hatchery, under identical conditions with a batch from a northern river; and, vice versa, a batch from a northern river were hatched and reared in a southern hatchery, under identical conditions with a batch from a southern river. In the northern hatchery no difference could be detected between the two batches reared there; growth was comparatively fast and the migration age early. Hence, says the report, under similar conditions of feeding, the dominant factors are temperature of water and length of summer, not any hereditary tendency. Variation in the amount of food affected growth, and high temperature was bad for the health of the fry, especially if combined with artificial feeding.’ During most of the winter, the parr hibernate under stones and feed at irregular intervals when conditions are, for the time being, kinder (possibly upon a rise in temperature of the water); and the normal hunting does not begin again until late February or March brings a renewal of the food-supply. The duration and intensity of the winter's fast is not the same in all rivers. The evidence obtained by examining the distance between the winter-rings on scales taken from parr in a favoured river will generally show that these fish are only partly dormant in that time of scarcity and manage to secure a small amount of food; growth, therefore, does not altogether cease. Scales from parr of other rivers, where life is much harder, exhibit a winter check consisting of a very narrow band of closely-spaced rings, bearing witness to inactivity due to the scarcity of food.

§ 5. *The smolts go down to the sea.*

At the beginning of the second year parr or samlets, as I have learnt to call them, darker in colour than in their first season, set out with the joyous prospect of rich summer-feeding. They leave the quiet of their winter-quarters under the stones for the thin water and stickles of the main river and, wherever they go, seize all that comes their way with an apparent lack of discrimination and grimly determined to miss nothing, not even a salmon-fly, two and a half inches long!

Parr-males are often found ripe towards the end of their second summer and are capable of fertilizing eggs. It is common for a trout-fisherman to find his hand covered with milt after having removed one of them from the hook, in order to return it to the river.

In some of the warmer southern streams numbers of one-year-old parr will work their way downwards, put on the smolt-coat and disappear into the sea. In a river such as the Hampshire Avon, a large percentage of smolts have been said to migrate in their second summer (Willes: *Salmon and Trout Magazine*, October, 1923). This statement needs verification. In any particular river, the earlier a smolt migrates, the longer, on the average, it stays in the sea and *ipso facto* the heavier a fish it is likely to have become when it returns. This seems to explain why the salmon of the Hampshire Avon are usually large and why, as might be expected in a river where there are so many one-year smolts, grilse are rarely found. The majority of smolts that return as grilse migrate in the early part of their fourth or fifth summer: although a small number of grilse proceed from two-year-old smolts.

The second summer is spent in food-gathering, until the parr has attained to a length of five or six inches; then another winter-fast leaves the fish eager for the last few months of river-feeding. April finds the desire to migrate well established and the parr beginning to collect into shoals, as they go slowly downstream.

During the month of April, a deposit of silver is formed in the skin overlying the scales of the parr, so that the colour beneath them is obscured. If, however, the body of the fish is rubbed, this deposit is easily removed and the old pigmentation, including the finger-marks, is revealed. At this stage, the tail lengthens and becomes forked; and the name parr is exchanged for that of smolt. The fish is then about four and a half to six inches in length, a margin which covers those migrating when they are two, three and four years old.

Before the end of June, all these fish, taking advantage of convenient spates, have completely disappeared into the sea. To what extent the silver coat of the smolt is the parallel of the bright livery worn by the kelt on its return journey down the river it is difficult to say; but it seems likely both are assumed as the most efficient protection from their enemies in the sea, because silvery scales confer upon their wearer invisibility, to a greater or less degree, by reason of their power to reflect surroundings, as would a mirror. Both the smolt and the female eel assume a silver coat upon setting out on the journey down the river and through the densely populated lanes of the sea.

Although two years is the mean age for smolts, some are three, four or rarely five years old at the time of migration. An explanation of this difference, called divided migration of smolts, is very well expressed in the following words. ‘In our more northern rivers the climatic conditions are somewhat severe, and here we find protection afforded against disaster by a greater variation in the length of parr-life than exists in more southern rivers not subject to such extremes of temperature. Were a frost of exceptional length and severity in a particular winter so to injure the spawning-grounds that the majority of *ova* perish, then, if all the parr became smolts at the same age there would be no smolts in a certain ensuing year. In certain districts only seventy-five per cent of the parr become smolts at two years of age, and twenty-five per cent remain a year longer in the river; therefore should one year's brood be totally destroyed, there would never be a total lack of smolts unless disasters occurred in consecutive years.’

Mr Nall tells me that, with exceptions, seatrout that make poor and slow progress as parr continue to do so throughout their life. Probably investigations into the early lives of salmon similar to those he has undertaken in connection with seatrout, would demonstrate the same result in rates of growth and general condition.

Salmon-smolts unlike those of the seatrout do not hang about the estuary, but vanish with astounding promptness into the sea. One day a sweep-net will capture smolts in hundreds ; on the next tide hardly one can be found.

A short time ago, the smolt, *salmo salmulus*, as it was called by Linnæus, was considered by many to be the mature form of a species, entirely different from the salmon, an opinion probably cognate with the comfortable doctrine that grilse would go back to the sea without spawning and, therefore, should, to adapt a familiar *cliché*, be caught while the catching was good. This idea passed as current coin in the past, but we are slowly learning the true values of salmon-life by the aid of scientific methods, viz. the reading of scales and the marking of fish. The control of netting has put an end to the evil of grilse-slaughter ; but it takes more to protect smolts and parr than printed prohibitions and the statutory right of bailiffs to examine anglers' baskets. There is only one way : education and the creation of the feeling among all fishermen that the preservation of young fish serves the common good, not the private interests of the few. I am afraid the words, the common good, will become in angling nothing but a mockery, unless steps are taken to preserve, to extend and to create new opportunities for the growing company of anglers.

Whatever luck the young salmon may have had in the presence of pike and cannibal-trout, they must escape in the estuary enemies far more numerous and greedy, if they would gain the open sea. Herring-gulls, cormorants, goosanders, red-throated divers and mergansers, coal-fish and, strangely enough, the conger, all these according to their locality, await the coming of the smolt and gorge on them. To every animal its own prey and rightly so, but I think the wise intervention of man, where it is possible, at the time of the smolt-migration would hardly upset the balance of Nature !

And afterwards ? The sea, the grey mother of all fish, the sweet giver of food, has hidden the smolts from the eyes of men and will not let them go. After many tides have ebbed and flowed, they will at last win the freedom of the sea and return to their own river as full-grown salmon, strong, graceful and exquisite in silver and blue. What do we know of the months between ? Not very much, but always a little more, as the dredge-net tells its story and marked salmon are taken again, so that to-day we have learnt a few facts about the marine life of salmon, but practically nothing of the forces that govern their return to the river.

§ 6. *Of life in the sea.*

Knowledge of the marine existence of the salmon is at present very limited, although the study of scales, the systematic marking of fish, the reports of trawlers and the use of nets have lately added a little to our knowledge. This section, therefore, can only deal with the ideas and possibilities that, from time to time, have been put forward in this fascinating and very difficult line of research.

It is known that smolts make their way from the estuary with considerable dispatch; in this respect they differ from young seatrout, which frequent tidal waters and remain inshore for a considerable period. The movements of the salmon-smolts are naturally dependent on the physical conditions surrounding them. If the feeding-banks are close at hand, it is only to be expected that the young fish will easily be discovered by the agency of a fine net, when they have reached the intermediary stage between smolt and grilse. Such was the experience of Professor Knut Dahl, when he was netting in the Norwegian fjords. And smolts that had clearly arrived in the salt-water but a short time have been found with sprats and shrimps in their stomachs. Professor Dahl examined some grilse caught in mackerel-nets employed near the coast and discovered herring and sand-eels to be among their articles of food. The flesh of the herring is highly nutritious and would easily account for the high growth-rate of salmon during their sojourn in the sea. Beside sand-eels and herring, the diet is extended to whiting, haddock, various marine worms and crustaceans. But herring is a shoal-fish that follows its own favourite food, *plankton*, wherever the latter is carried by ocean-currents. It is a tempting theory to advance that, after a period of feeding on small fish, worms and *crustacea*, the young salmon set out after their staple food, the herring, and chase it through the ocean-lanes in the rear of the advancing clouds of marine *plankton.*

On pages 316 and 417 of *Trout Fishing from All Angles* drawings are shown of several forms of fresh-water *plankton*, which are carried to and fro by the currents in sheets of water and in quiet stretches and corners of river. The marine forms are alike in behaviour. They are minute forms of life, often crustaceans, always without any power to make any headway in any direction, and are entirely dependent in moving from place to place upon ocean currents. Thus comes the name *plankton*, which shares a common root with planet, a wanderer (πλανήτης). Small organisms of this type are not eaten selectively. The feeding fish swims through a cloud of them with its mouth open and takes them by infiltration ; that is, the food is held in the mouth, but the water accompanying it passes out through the gills.

The salmon may be a deep-water feeder or a fish that gets its nourishment from other fish that habitually live near to the surface ; it may be slow in the sense that a mackerel or a tuna thinks of speed ; but all the evidence gathered in British seas about the Atlantic species goes to show it is often a great traveller and is capable of keeping up an average rate of forty miles a day. But this is clearly accomplished during the period when it is returning from the banks to the estuary ; this speed surely cannot allow any time for feeding.

The whole problem is one that is the concern of experts, to whom all channels of information are open and who have the training and opportunities (if not the money !) for investigation ; it is fitting, therefore, that a comprehensive survey of our knowledge of the salmon's marine life should be undertaken by them. In the meantime, we can assume that salmon undoubtedly go far abroad in search of nourishment, the herring being the staple food, and undergo periods of fasting at irregular intervals during the winter that correspond roughly with the scarcity of herring, or with the difficulty the latter are experiencing in discovering enough minute *plankton crustacea*, or with the period of adolescence in the herring themselves. And these times of growth-suspension or growth-deceleration are recorded on the scale of the salmon and correspond to the check due to the partial cessation of feeding in fish that are still undergoing in fresh-water their preparation for sea-life (see p. 402).

As soon as a salmon is ready to return to its river, it leaves the feeding-banks, as a rule, ceases feeding and makes instinctively for the part of the coast near to the estuary of its own river. It is urged by some impulse as yet too recondite for us to understand. Neither satiety nor sexual development provide us with complete explanations, because a large number of fish run up the river months before their own spawning-time; and, in some years, grilse enter the west-coast rivers of Scotland quite emaciated and showing obvious signs of having had very bad hunting for the last three or four months preceding their return. Any solution of the problem must be able to account for the presence in fresh-water of winter fish, which have been proved to enter the Tay as early as September and not to have spawned until November of the succeeding year.

There is apparently a general law that Scottish fish arrive at the coast in shoals and then work along it, until they find their own rivers. They will often roam about in company off the mouth awaiting favourable conditions, that is, a high tide and good running-water in the river. Mr Griswold records the same tendency in Newfoundland and Canadian salmon. 'The Cascapedia fish wait until the snow-water has run out. In 1929 the first salmon was taken in the Carleton nets, near the mouth of the river, on April 23. The first fish was taken on a fly in the lower waters . . . when the temperature of the water was forty-seven degrees.' The Cascapedia flows south into the Bay of Chaleurs, New Brunswick. He goes on to say, 'they remain in salt-water, swimming back and forth against the tides, until the temperature and strength of the river-water is agreeable, before they attempt the upstream journey' (*The Life-History of the Salmon*, 1930). This difference in habit between the two groups of Atlantic salmon has not yet been explained, for Scottish salmon force their way up a river, from which large ice-floes are descending and the sides of which are widely ice-bound.

§ 7. *Of the nine-year cycle.*

The most interesting of the theories about salmon-fishing that have been advanced lately is connected with the nine-year cycle of Professor Otto Pettersson of Gothenburg. This theory was first propounded by Mr Griswold, who was seeking for some explanation for the universal poverty of the catches, both of rod and net, during the season 1928. Some account of this I am quoting direct from his book, *The Life-History of the Salmon*, because there is great difficulty in getting copies of it.

Mr Griswold found that 1928 was not the worst season on record; 1919 was worse (*nine* years before) and 1911 (*eighteen* years previously) was equally bad. Professor Pettersson had discovered that 'the currents along the coast move *off and on shore* in *cycles of nine years*. In this century, the nine-year cycle at furthest off shore began in 1903. The cycles run to date: 1903 to 1911, 1911 to 1919 and 1919 to 1928. In each of these cycles salmon-fishing was at its worst in the years mentioned, namely, in 1903, 1911, 1919 and 1928; *at the end of each nine-year* *cycle*. I discovered this by examining the scores of the rod catch of both the Grand Cascapedia and the Ristigouche Club.' 'I find the reports from the nets agree with the rod scores. Their poor years agree, as also do their good seasons.' He instances the analogy of the scarcity and plentifulness of mackerel according to whether or not their food, sperling, have been brought in by the tide. '*Squid*, *menhaden*, *sardines*, *anchovies*, *sora*, *shrimp* and numerous other school fishes, are at the mercy of the current and float back and forth on the tides, for they have not the strength to stem them. All schooling fish feed *en masse*, and must follow the bait or starve.' The currents move off shore for four years or so and then flow inshore for a like period ; this corresponds with the years when the fish following the *plankton-crustacea* (copepods, diatoms, etc.), are scarce and in great numbers round the coasts. In this connection, Mr Griswold 'remembered that Professor Pettersson had written that the *moon* and the *sun* have considerable influence on the waters of the earth, and that the tide generating force *varies* through a *nine-year period*.' The truth of this theory, which is by no means established, is not likely to be absolute in so far as actual dates run ; but the intervals ought to be the same. The maximum and minimum effects of the moon on the currents off the western coasts of the Atlantic may be felt earlier or later, by a year or more, than they are by those of the waters of the Gulf of St Lawrence and the Newfoundland Banks.

CHAPTER THREE

LIFE-HISTORY *(continued)*

§ 1. *A summary of a salmon's life.*

O*VUM :* which is deposited any time, from the last week in October until the end of January, and under special conditions as late as March.

Alevin : This immature fish is hatched from the *ovum* ninety to a hundred days after been laid down (the average temperature of the water being forty to forty-five degrees Fahrenheit) ; as much as one hundred and forty days, when the temperature of the water has been very close to freezing-point. This stage lasts about fifty days, during which nutrition is obtained by the absorption of the umbilical sac.

Fry or *Parr :* The young salmon remains in this stage, until it is almost ready for migration. The period spent in the river may be any number of years from one (1·) to four (4·) and exceptionally five (5·) (these last two periods of river-life apply to parr that have had extremely poor feeding, such as those in some rivers in Scotland and often in arctic Norway). The word, fry, is applied to the fish in its early stages.

Smolt : The parr assumes a silver coat (see p. 36) and goes to sea. This generally happens in May.

Salmon : After a period of feeding in the sea longer than one year, the approximate minimum time before return, the salmon comes into the fresh water much increased in weight. Salmon are divided according to the duration of their marine life : grilse (·1+), that is one year of sea-feeding and a little more ; small spring fish (·2), two years in the sea ; small summer fish (·2+), which has had some feeding in the third year ; large springer (·3); large summer fish (·3+); and very large spring salmon (·4 and ·5). *These names, however, are strictly concerned with the period spent in the sea before returning to spawn for the first time ; it has nothing to do with the comparative weights of the fish,* although, within rough limits, the mean weights of the classes often do happen to correspond (see pp. 45, 46 and 48).

Kelts : Those fish which survive the exertions of spawning and also the downward journey to the sea feed heavily on the banks. Some of these recover condition quickly enough to be able to ascend once more into fresh-water after an absence of six months, others wait for a year, eighteen months and even two years, before seeking again the spawning-beds.

S.M. Fish : Salmon that are able to make the journey more than once, conveniently known as S.M. fish, that is, spawning-marked fish, are rare in some rivers, but fairly common in others. S.M. male fish are always rarer than females, as so many male fish die after their share in the reproduction of their species has been accomplished. The life-cycle then begins again with the *ovum* or egg.

§ 2. *The return.*

Salmon enter the rivers throughout the greater part of the year and are divided by investigators of their life-history into groups, according to the period the fish have spent in the sea. There are two main runs, spring and summer, but these are not present in the same proportions in every river. Some streams depend almost entirely upon one of these for their stock of salmon, so that it is a matter of common parlance to hear a particular one referred to as a spring or an autumn river. Under the present system of scale-reading, all fish that bear upon their scales no growth-lines after the last winter-zone are classed as spring fish; and the number of full years they have passed in the sea determines whether they are small, large or very large spring fish.

Summer fish, that is, those which show on their scales a series of open ridges at the margin (see p. 402), are divided in the same way. Grilse are salmon that have spent one year in the sea and part of a second. This is expressed for convenience by the symbol ·1+. The remaining summer fish are the small (·2+) and the large (·3+). If the smolts of one season, for example, those which were hatched in 1900, all migrated when they were two years old, they will have supplied part of the salmon stock for the next four or even five years. Underneath is a table that shows how this would come about. The first figure represents the number of years the smolt has spent in the river.

Table of Divided Return from the Sea of 1900 Fry
(Spawned in 1899)

	·02	·03	·04	·05	·06
Smolt	2·	3·	4·		
Grilse		2·1+	3·1+	4·1+	
Small spring fish . .			2·2	3·2	
Small summer fish . .			2·2+	3·2+	
Large spring fish . .				2·3	3·3
Large summer fish . .				2·3+	3·3+
Very large spring fish . .					2·4

The names given here are not to be taken as indicating the total age of a fish. A small summer salmon with three years of parr-life (3·2) was laid down as an *ovum* in the same spawning-season as a large spring salmon (2·3), which entered the river a few months earlier. A grilse that had had four years in the river before going to sea (4·1) is also of the same age.

Divided return is another of nature's safeguards against the extinction of the race by a great catastrophe to the stock in the river. If the whole of the stock of one year were destroyed, there would still be breeding fish, awaiting, in the sea, their time to ascend and repopulate the river.

§ 3. *Grilse.*

The first of a generation of salmon are known as grilse (pl. 12), a name that appears in early Scots laws as *gryllys*. The origin of the word grilse is obscure. Sir Humphry Davy wrote of a grilse as a graul and added an 's' to each word to form the plural. Rennie, in his *Alphabet of Scientific Angling*, published in 1853, five years later than Davy, used the words gilse and graul, as well as grilse. The Oxford Dictionary is very discreet and suggests a derivation from the French *gris* or from the Scandinavian *grålaks*, either of which is descriptive of the wonderful silver-greyness of the youngest class of salmon, but of these two sources I incline one moment towards the French, because for centuries there were close cultural relations between the kingdoms of Scotland and of France; and then I am tempted to connect Davy's graul with the Scandinavian word.

Since the day when the grilse left the river as smolts, they have spent only one complete year and a few months in the sea and, if they have migrated at the age of two years, the earliest of them are three and a quarter years old, when they arrive in the estuary to take the first chance of ascending the river offered them by a spate.

It is extremely rare for a salmon on its first migration to stay less than one year in the sea. The marking of fish and the study of scales have put out of court the suggestion that grilse are fish returning to the river in the same year in which they had migrated as smolts. Salmon in the stage between smolt and grilse have been taken: one in fresh-water, at the top of the tideway of the North Esk, but it cannot on that account be said they would have ascended the river to spawn; one taken (2·+) on July 28th, 1930, from the Lochy, Argyllshire, which was twelve and a half inches long and weighed nine ounces; and there are several other British examples. Provided a fine-mesh net is employed, it is quite easy, Professor Dahl states, to obtain from selected areas in the open sea salmon in the transitional stage; but the nine hundred attempts he made to take them in Norwegian fjords produced only one example. It appears from this evidence that salmon smolts go straight out to sea after leaving the estuary.

A grilse is, therefore, a maiden salmon with one complete year and a little more of sea-life, although it may have had from two to five years of parr-life and be from three and a quarter to six and a quarter years old. The question of age can only be settled by reference to its scales, which also provide the only sure way, when external signs are not convincing, of distinguishing small summer salmon from grilse. But more often than not one can tell by the look of the fish. A grilse is slimmer and more graceful and seems longer for its depth than other salmon; the wrist of the tail is smaller, the tail-fin is more forked and the scales are easily rubbed off the body of a fresh-run fish. A comparison of the photographs on plates 12 and 9, gives a far better idea than do words of the graceful beauty of the grilse and the handsome power of the older salmon. As a rule, the male-grilse outnumber the females, in some rivers in as high a proportion as four to one; but in other streams the sexes are found in almost equal strength.

According to Mr Menzies, 'in Scotland the first grilse of the year commonly appear along the shore somewhere between Rattray Head and Montrose about the middle of April.' They do not attempt to enter the river in force until mid-May at the earliest; although a few fish, the vanguard of the main shoals, enter fresh-water a little earlier. It is not possible to give a general date when a class of salmon may be expected to run, because there is so much variation throughout the British Isles; but in any particular river there is a wonderful degree of constancy from year to year.

In the Tay the early grilse are expected during the first week of June and may weigh on the average $3\frac{1}{2}$ lbs (this includes fish of $1\frac{1}{2}$ lbs); at the end of June they have a mean weight of 5 lbs; in July 8 lbs; in August as much as 10 lbs; and they will continue running until December. The increase of average weight is a sure index of the supreme value to a fish of summer-feeding in the sea; but the range in the sizes of fish of the same age needs the further explanation that, while differences of sea-feeding may have played their part, it is more probable the marine rate of growth has been influenced by that of parr-life, in other words, the poor development of the parr tends to be reflected in its subsequent growth during life in the sea.

In the Wye grilse seldom show before June, are in their greatest numbers in July, decrease during August and are rare after that month; the average fish in the grilse-season is of $5\frac{1}{2}$ lbs weight, including the extremes of 2 lbs and 13.

During a drought grilse, day after day until the river is again in flood, follow the tide, as it flows into the estuary, and then drop back on the ebb. Should there be a full spate at the time when the main shoals arrive, the fish go straight up into the river without much delay. The run of grilse in some rivers quickly reaches its zenith, remains at the point of maximum intensity for three weeks or a month, drops down as rapidly to an odd fish or two a day and finally disappears for that season.

The subsequent history of the grilse is that of any other salmon, except that they run very much faster than the members of the older classes and arrive at the upper spawning-beds almost as soon as the spring fish that have had four months' start of them.

§ 4. *Spring fish.*

Small spring salmon are maiden-fish that have had two years' feeding in the sea, before returning to fresh-water. In many of the larger rivers, especially in some of those of Scotland, the first of the spring salmon, known as winter fish, run during October, November and December in company with autumn, that is, late-summer, fish that are well advanced towards maturity and are on their way to the spawning-grounds. These winter fish, in which at that season there is no obvious trace of sexual development, continue to come up from the sea, until they are succeeded during February, March and April by true spring salmon of the same age as themselves. But none of them will spawn until the next autumn, by which time the October fish will have lived in fresh-water for a period of twelve or thirteen months.

In any one river, the weights of early examples of these winter fish are often less than those of their equals in age, the late-running grilse; and the average weight, taking Scotland as a whole, is 8·5 to 9·5 lbs, which includes fish from 4 to 20 lbs. In the Aberdeenshire Dee the average fish of this class is 7·5 lbs: in the Herefordshire Wye 11·5 lbs within the broad limits of 4·5 and 24 lbs. At the opening of the season the stock may include older fish, which have stayed a year longer and, in respect of the very large spring class, two or even three years longer in the sea than the small springer. Large spring salmon are therefore unspawned fish with three years of marine life; they run up the Wye from February to May, weighing anything from 11·5 to 42 lbs with a mean of 20·7 lbs, but the biggest Scottish examples do not exceed 36 lbs.

Very large spring salmon, the heaviest of which are usually males, have spent four and, exceptionally, five years in the sea without returning to spawn. Their mean weight is about 38 lbs, with a maximum of 46 lbs for those with four years' sea-life; the biggest of this oldest class of maiden fish (·5) of which I can find record is a salmon of 61 lbs, taken in July, 1924, at the mouth of the Don and two mentioned by Mr Hutton: an Exe salmon of 61·25 lbs (March) and one taken in the Aaro of 68·25 lbs (July). Mr Hutton adds that his specimens of this comparatively rare class were not particularly well-shaped fish, which almost suggests that they had not been lucky in finding rich food-supplies, and consequently had spent an extra year in the sea. This seems a just conclusion when it is remembered that the Tweed fish of 65 lbs (June) and that of 74 lbs taken in May in the nets at Lillebergen, Norway, were a year younger in point of sea-life (·4).

Spring fish present a most interesting problem to students of the life-history of the salmon. The earliest of these, generally called winter fish, leave the sea in October and remain in fresh-water until they spawn in the autumn of the following year. The rich feeding in the sea is forsaken for a river-fast of a duration that seems to us quite unreasonable. It has been suggested that the fish, which leave the feeding-banks a considerable time before the spawning season, do so, because they have reached a state of satiety. Their needs for the moment are filled and they have stored away a full stock of reserve fat within their muscles and tissues. How is it then that in some years fish come up during May and June in a poorly-nourished condition? In many cases the rivers are easy to ascend and there is no need to leave so great a margin of time to make sure of a punctual arrival at the spawning-beds.

§ 5. *Winter fish.*

The best known of the winter running fish are those of the Tay. Traherne wrote of Loch Tay being stocked with them in November. Their spawning-grounds are many miles upstream in the headwaters of the Perthshire Garry, upon the Moor of Rannoch and on the southern side of the Pass of Drumochter. Their rate of progress in the winter months is usually very slow, because they refuse to face the icy water coming down from the snow-fields and to jump falls and very rough water, until the temperature of the river has risen with the approach of summer. A small body of opinion held this early start to be no more than was necessary to give spring salmon time to reach the upper reaches and nothing but a natural way of ensuring that every spawning-bed should be occupied throughout the whole stretch of the river. This theory appeared sound, until it was tested by reference to the habits of salmon in short rivers, such as many of those which flow down to the western coast of Scotland. In these also were found spring salmon, running not quite so early, but leaving themselves, in order to cover the twenty or thirty miles to the top reaches, as much time as some people allow, when they go to a station early enough to catch the corresponding train of the day before! And yet in other rivers, such as those of Islay, where the water is warm, ice and frost are rare, food is plentiful, the conditions are mild and the upward path is unobstructed by falls and weirs or caulds, salmon run late.

Does sexual maturity, as we understand it, force these fish to go back into fresh-water? An examination of the *genitalia* of either sex leaves no doubt that this is not so: in the males there is no sign of milt; in the females the *ova* are as minute as pin-heads.

William M'Nicol once said, 'like breeds like and you cannot expect summer fish to produce springers.' This was the opinion of one who had had dealings with salmon throughout the whole of his life and, although he had no real evidence to bring forward, was a man of very wide experience in the characteristics of salmon. The change of the runs of fish in many Scottish rivers, following on the control of netting, supports out his statement, because the rivers formerly famous for their autumn fishing have now become spring rivers. This is surely due to more of the spring breeding-stock being allowed to get through the nets and ascend to the spawning-grounds. Why then do the fish in many west-coast rivers not take early advantage of a free passage to the redds, a journey of, perhaps, little more than fifteen or twenty odd miles? There is at present no answer.

'The River Helmsdale (Sutherlandshire) affords some important evidence in relation to the spawning of early-ascending salmon. Not many years ago, netting began in that river on the 11th of February, but the spring take was comparatively insignificant, both for nets and rods. But of late years the Duke of Sutherland (the proprietor) has prohibited the nets from being worked, until the 1st of May, and the result is that the spring fish have vastly increased in numbers' (Traherne: *Habits of the Salmon*, p. 8). But later in his book he gives an example from the Irish Blackwater, showing how the closing and opening of that river a fortnight earlier has increased the spring catch. My own remedy for lack of stock at certain times of the season would be to insist upon a forty-eight-hour *slap* for the nets every week and the amelioration of the salmon's upward path; the latter is, I believe, the more important.

In chapter nine of his book, Mr Menzies discusses the possibility of 'local and seasonal races.' He supports the fabric of the argument with tables of the lengths and weights of salmon from different rivers. But we do not know whether one of a pair of salmon may not be the predominant partner, so that inter-breeding of two fish of different race might in consequence not be fatal to the continuance of separate races. And if the origin of the races in a given river seems to lie in habits first acquired to overcome conditions prevailing at different times of the year, it is difficult to see what were the conditions in a short river that created the habits of spring fish!

It is very natural to ask whether it has been proved that winter fish remain in the river without going back to the sea again before they have spawned, sometimes a matter of twelve or thirteen months. There is abundant evidence that only a few 'droppers' return to the sea, before spawning, and then come up the same river again or find another. These fish may equally be of a summer class, such as grilse, or spring or winter salmon. Mr Menzies states that, unless low water has held up the spring fish, they are clear of the lower reaches by the end of May and that, if one is found later in the tideway, it is most probably a ‘ dropper ’ and will usually be taken during a spate. This habit of dropping back is said to be due to disease or to an abrasion. He records an example of a winter fish that ‘ was marked as a clean fish in the Spey in November, 1922, and was retaken in a Port Gordon bag-net some four miles to the east of the river-mouth on 25th May, 1923. In the interval, the weight had decreased from $4\frac{3}{4}$ to 4 lbs.’

§ 6. *Summer fish.*

Small and large summer salmon are senior in sea-life to grilse of the same season by one or two years respectively. In some rivers, summer fish ascend in April and are mixed up with a late run of small spring fish, which they often resemble so much in shape, condition and weight, that scale-examination is the only method of differentiation. The average weight of small summer salmon in May is about the same as that of small spring fish of the same month ; but the value of summer-feeding to the former class is clearly shown by the increase of weight of fish that leave the banks later in the year.

Small summer fish in the Wye have a mean weight of 12 lbs, ranging from 5 to 25 lbs ; but from the Spey there was once taken, on August the 12th, a small summer fish (·2+) of 32 lbs.

Large summer fish (·3+) in the Wye average 21 lbs, ranging from 15 to 30·5 lbs.

Summer salmon continue to run until some time after the close of the season on most rivers ; and from this group come the very heavy autumn fish, for which some rivers are famous. These salmon (·4+), which are rare, have had another year of sea-feeding. Mr Arthur Hutton gives, in his list of heavy male fish, one of 52 lbs caught in October in the Aberdeenshire Dee, a November fish of 55 lbs. in the Tweed, a September fish of 58 lbs in the Namsen and one of 61 lbs taken in the nets off the Kincardine coast.

How can I finish this short summary of the salmon's life better than by asking every salmon-angler to end it for himself in the memory of his first day of a season ? There is peace in the pools. Not a fish shows. But hope is high as the well-known lodges are fished over. Perhaps hours pass and faith falters, until deep from under the surface there comes a firm heavy pull. The rod bends and the line flies out or, tightly strained, shears the water with the noise of rent silk, as a salmon forces its way upstream. This to the fisherman is the supreme joy of the year ; but the angler-philosopher is also glad in the knowledge that faith has been kept. All is well with the Cycle of Life. The salmon have come back from the sea.

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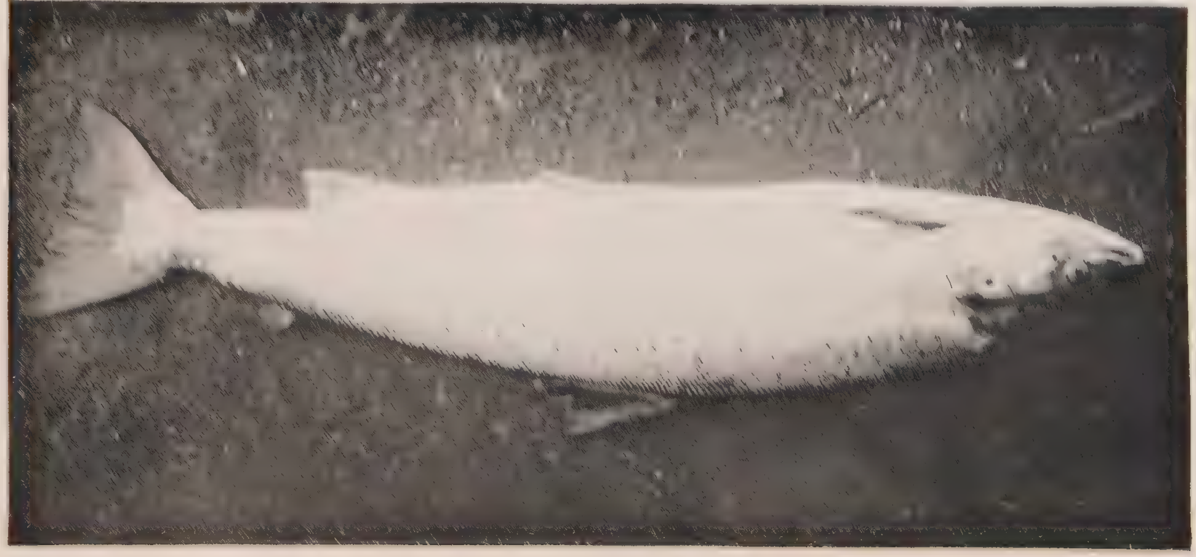

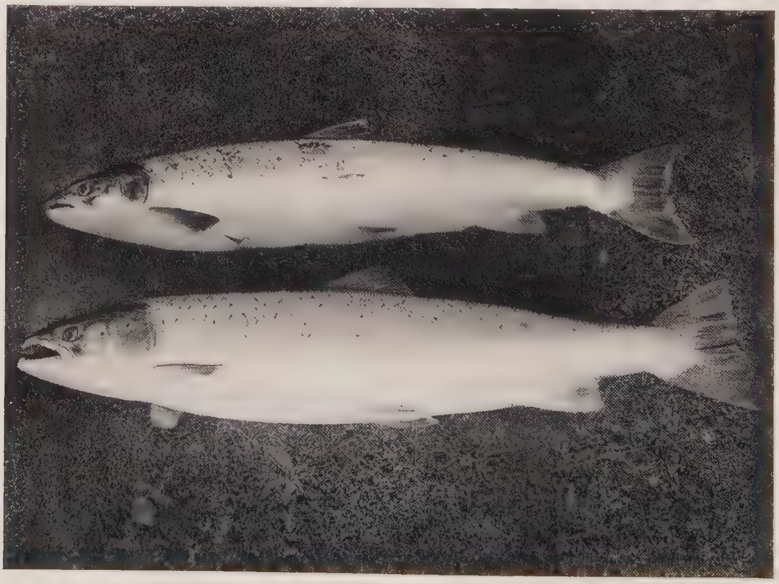

Plates 13 & 14

NETTING SALMON ON THE NITH, SCOTLAND

SMALL SPRING SALMON

TWO WINTERS OF SEA-LIFE: 10 LBS. FEMALE AND 12 LBS. MALE. THESE ARE SHOWN ON A LARGER SCALE IN PLATE 15.

CHAPTER FOUR

LIFE-HISTORY (*continued*)

SALMONIDÆ

salmo	*salar*		Atlantic salmon
	trutta (migratory), or		seatrout
	fario (non-migratory)		brown trout
	irideus		rainbow trout
salvelinus	*fontinalis*		American char or brook trout
	alpinus		European char
oncorhynchus	*tschawytscha*	Pacific salmon	quinnat, chinook, tyee, or king salmon
	nerka		red, sockeye, saw quai, or blue-back salmon
	kisutch		silver, or coho salmon
	gorbuscha		humpback salmon
	keta		dog salmon

§ 1. *The distribution of salmon.*

THE Atlantic salmon is to be found in most rivers draining into the western European seaboard and also in those of Iceland, Newfoundland, eastern Canada and the northern portion of the eastern coast of the United States. Where salmon do not occur, the reason is usually due to conditions being unfavourable for the perpetuation of the species, for within comparatively recent times there were salmon in the Thames and Trent (this river still contains a very small stock) ; the latter through unchecked pollution ; the other on account of pollution to a marked degree and also because the system of locks and weirs, designed to make the Thames a navigable river, have destroyed the salmon's ancient right of way ! The provision of salmon-ladders and cessation from using the river as a common sewer would bring the salmon back again to them both. In a few rivers the building of a weir or the elevating of the sill of an existing weir has excluded from its waters the descendants of the salmon that used to frequent its upper reaches for the purpose of spawning. A firm hand towards vested interests allied with tact will bring about a great improvement in every instance ; unfortunately this course is rarely taken against the polluters. All of us dream, however, of the day when there shall be salmon in all our rivers and the water that flows in them shall again be pure.

The salmon that run up the rivers of the western seaboard of Canada, Alaska and the United States are of a distinct *genus : oncorhynchus.* The latest classification of these fish will be found in the table opposite page 48. The habits of these fish differ in some respects from those of the Atlantic, and from one another, the most notable of these peculiarities is the refusal of any red salmon, *saw quai*, or sockeye to enter any river that has no lake adjoining it. This species largely supplies the canning industry. None of the Pacific salmon, in ascending the rivers to reproduce their species, return from their long journeys up the fresh-water. The distance up to the spawning-grounds in the Alaska river, for example, is well over two thousand miles. To this height fish ascend in tens of thousands—or would do, were there no canneries to demand their vast quota out of every run ; in the clear waters near the heads of these great rivers spawning takes place ; the *ova* sink to the bed of the stream, uncovered by the stones of a redd ; the parent-fish, utterly exhausted by the efforts of oviposition, turn over to die, are driven by the current towards the side and are then washed up in windrows along the edge of the pool. I read in Mr P. A. Taverner's *Birds of Western Canada* that none of these fish survive to return to the sea, but simply become the carrion whereon certain species of bird eagerly feed, no matter how offensive th, corpses may become. (See plate 8 and footnote p. 50.)

In the light of modern knowledge all salmon that come into the rivers of the British Isles are of one *species ;* the practice of scale-reading and marking has disposed of the fable that grilse are a *species* distinct from the salmon. And it is now freely admitted that any physical differences between the salmon of two rivers, wide apart from one another, are attributable to variation in local conditions and not to their representing different sub-species. As I tried to show in *Trout Fishing from All Angles* (p. 45 *et seq.*), fish are wonderfully sensitive to their environment and adapt themselves and their mode of living to the calls of river and of sea. When, therefore, someone tells you how the old-time salmon in a certain river were long and lanky, whereas they are now short and thick at the shoulders, you should consider for a moment the distance at which the stretch he fishes is removed from tidal water. It is more than likely it will be a long way ; and you can then tell him that, through improvements in the upward path, he is now seeing fish earlier and, therefore, in far better condition than before. Undoubtedly there are minute local differences in salmon ; but none of them has any real bearing on the main salmon problems of the day. There is only one species of salmon native to European waters ; any external variations are temporary and due to environment ; and in all probability the true home of the salmon is in the sea.

§ 2. '*Bull trout.*'

Within the last few years, a definite solution has been offered to the problem of the bull trout. This had long been considered a separate species (*S. eriox*), or a distinct type of seatrout. The rivers in which this fish was supposed to be found were Tay, Tweed, Coquet, Hope, Grimersta and many others.

Mr G. H. Nall, who has kindly allowed me to extract the following

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S. quinnat and *S. nerka* ascend a long distance, the others only a short distance from the sea (Tate Regan: *Encyclopædia Britannica :* 14th edn.) and individual fish live to return.

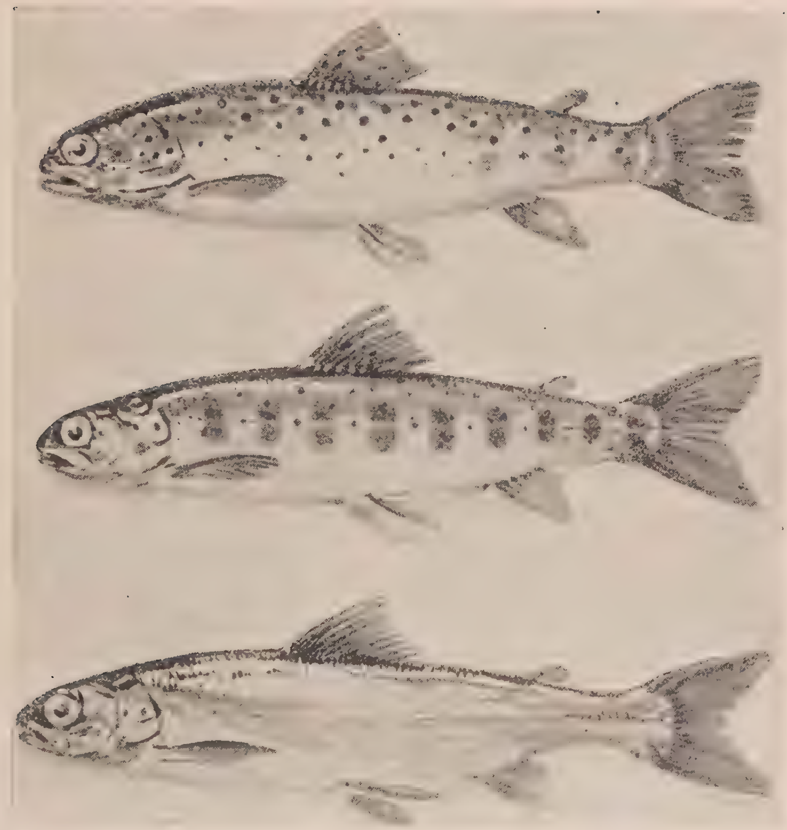


Fig. 1.

Top : Young Trout.
Middle : Salmon Parr.
Bottom : Salmon Smolt.

This shows clearly the difference between the tails of parr and of young trout; and also how the mouth of the latter extends further back in relation to the eye Finger-markings are no sure test, as they are frequently present in young trout as well. (See pp. 52 and 53.)

information from the proofs of his latest book, set to work to discover what these trout really were. His findings are that in some rivers the name has been given to brown trout that have adopted temporarily a habit of feeding in brackish water, or have permanent feeding-grounds there, that is, they are estuarine or slob trout of considerable weight and are silvery in appearance, when they run up the river to spawn. In the Tay, the term has been applied to salmon returning to fresh-water to spawn for a second time ; these are usually to be distinguished at a glance from maiden fish by the presence on the gill-covers of a number of black spots and by other markings. ‘ But if we exclude the Salmon and the fresh-water Trout, there still remains a very indefinite class of genuine migratory Trout to which the term has been, and still is, applied. In many districts some of the large Sea-trout, which in appearance vary from the commoner type, are called Bull Trout, in Wales as well as in Scotland and England, and the term has been carried by British anglers to Norway. But the name is gradually dying out. Not many years ago, for instance, bull Trout were supposed to exist in the Ewe and the Ailort. Now there are none. The fish are there, but the name is dead ’ (*Life of the Sea Trout* : 1930 ; p. 185). The rest of Mr Nall's interesting chapter on this fish is a detailed investigation into its true nature and should be consulted for further information on the subject.

§ 3. *Distinguishing between salmon and trout.*

Considerable difficulty is sometimes experienced in differentiating between salmon parr and young trout, and on rivers where it is customary to kill any young trout hooked, so that salmon parr may have the bulk of the available feeding, mistakes are bound to occur, unless the constant points of difference are known. In figure 1 there are three drawings in wash, which Mr Lamond drew specially for this book, showing the characteristics of young trout, parr and smolt. And the following remarks are based upon those contained in his book, *The Gentle Art* (1911 ; p. 239). The general line of the trout is blunt : that of the salmon parr is delicate. The tail of the trout, though forked, is rounder and so are the pectoral fins. The parr is slate-blue ; the trout brownish-yellow in general colouring. The former have ‘ two very distinct black spots on their cheeks and small black spots on their bodies above the lateral line.’ ‘ The dorsal fin is seldom spotted ’ in parr. ‘ The dark spots of the trout are larger, have a pale purplish ring round each.’ ‘ The spots on the trout appear both above and below the lateral line, and the dorsal fin is closely spotted. The parr and the trout have each red spots on the cheeks and also along and below the lateral line.’ ‘ The jaw-bone (maxillary) of the parr and smolt reaches backward up to a level with the centre, but in the young trout to a level with the back of the eyeball. In other words, the trout has a wider gape. This seems to be a constant feature, and is a reliable test.’ Another useful sign is the colour of the adipose fin ; red and, in some instances, pale-edged in the trout ; slate-blue in salmon parr. Mr Chaytor mentions the observed fact that salmon parr, when hooked and hanging from the rod-point, kick vigorously ; whereas a young trout, in similar circumstances, hangs quietly when lifted from the water.

When salmon and seatrout return from the sea and ascend into fresh water for the purpose of spawning, they have both assumed a silver coat and are not always easy to distinguish from each other. The simplest test by the riverside is to count up the number of scales in the diagonal line running from the hinder edge of the adipose fin, forwards and downwards, to the lateral line. In the salmon, the number is usually eleven, but varies in individuals from ten to thirteen ; in the seatrout, the range extends from thirteen to sixteen with a normal of fourteen (see fig. 2). In addition to this test, there are some that are less reliable, such as the number of rays in the dorsal fin, the shapes of fin-edges, the depth of the gape of the mouth, etc., a list of which will be found set out in Mr G. H. Nall's *Life of the Seatrout* (1930 ; p. 303 *et seq.*). The most certain test, as he points out, is scale-examination, because salmon and seatrout of the same size will have had a very different life. For example, a ten-pound salmon will probably not have spawned at all, whereas a seatrout of that weight will most certainly not be a maiden fish and could quite easily be on its way to spawn for the third time. If you cannot hold up by the tail a fish you have just landed, you cannot be certain whether it is salmon or a seatrout. The former has well-developed knobs of gristle, which prevents the tail from slipping through the grip of the fingers ; but the seatrout is not so provided and in the grilse the peduncle is too small to assist the hold of the hand (see p. 48).

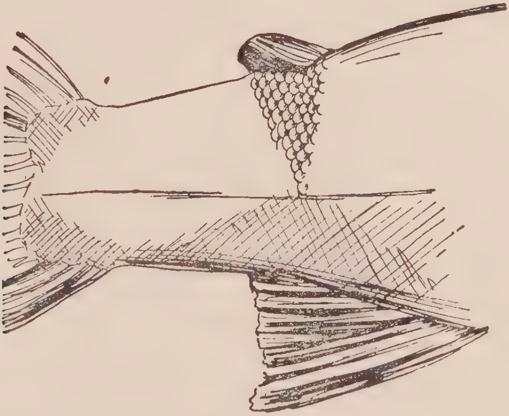


Fig. 2.

TO DISTINGUISH SALMON FROM SEATROUT.

In a salmon the number of scales from the hinder edge of the adipose fin to the lateral will usually be found to be eleven. In a seatrout there are normally fourteen.

§ 4. *The parts and markings of a salmon.*

In figure 3 there will be seen an outline-drawing of the salmon, which shows how the fins are distributed over the body and how they are named. It will be noticed that the tail, namely, the slim part of the body behind the line of the adipose fin, is not the same anatomically as the tail-fin or caudal fin, which is joined to its extremity. At the upper and lower edge of the tail, just where the fin has its origin, there are two lumps of gristle ; thanks to these it is very easy to pick a fully-grown salmon up by the tail (see p. 179), but almost impossible to grip in the same way a grilse or a large seatrout.

The adipose fin is, as far as we know, functionless. It is a mark borne by all species of the *salmonidæ* throughout the world.

On the under edge of the body and slightly in advance of the line of the adipose fin is the anal fin ; in front of this is the vent. Nearer to the head are a pair of fins that are joined at their bases ; these are the pelvic or ventral fins and serve as the occasional support to the whole body, when it is balanced on a ledge of rock or is resting in its lodge. The true point of balance, however, is a little forward of this position, a fact that is occasionally demonstrated by the presence of a small circular abrasion on the under edge of the body ; this is caused by the salmon having allowed its body at that point to rest on a rock. Any white or yellow lines apparently drawn diagonally across the body in this region are due to the fish having forced its way through the meshes of the nets at the harbour-mouth.

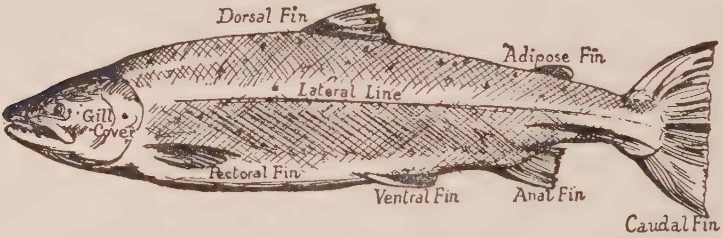
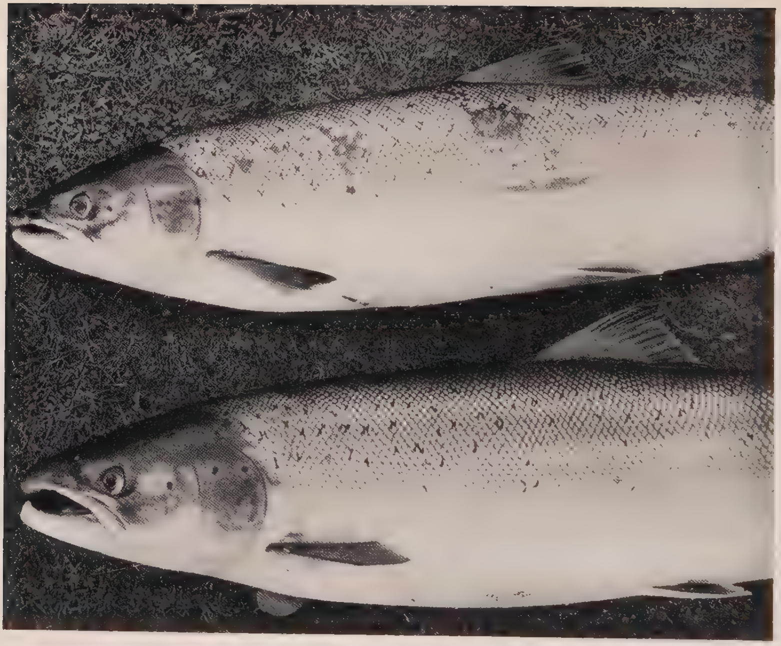
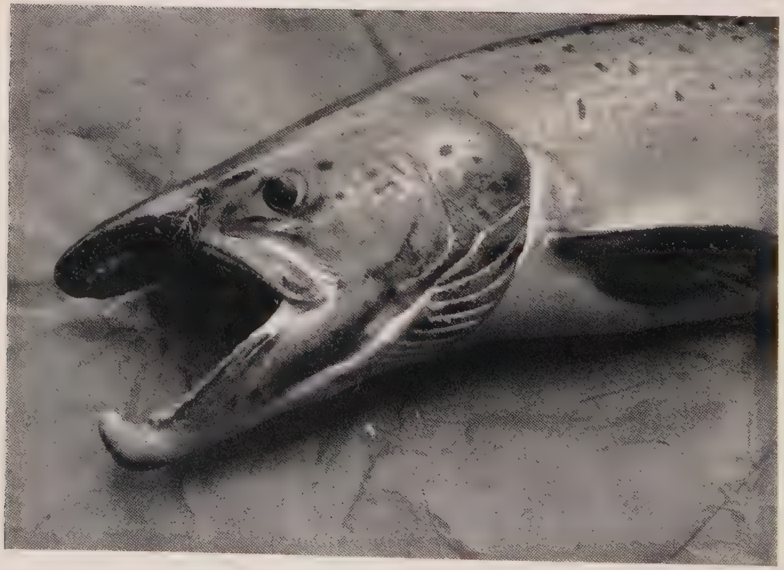


Fig. 3. THE PARTS OF A SALMON.

On the top of the body and just in front of the ventral fins is the dorsal or back fin ; and behind the angle of the gill-cover or *operculum*, on each side of the body, are fixed the pectoral fins. All of these attachments function as delicate instruments to obtain, preserve and restore the balance and control of the whole body ; they are not responsible for any locomotive effort, which is supplied entirely by the flexions of the whole body. The head first of all moves laterally, then the contortion proceeds throughout the length of the fish and the salmon moves forward. As soon as it is under way, the snake-like motions are no longer distinguishable and the fish merely seems able to dart swiftly and without effort in whatever direction it desires.

Along the centre of each side there is a line of pierced scales, known as the median or lateral line. Under every scale is a chamber filled with liquid, which in turn is connected through branch-nerves to the general nerve-system. Any alteration in water-pressure is at once felt by the liquid within the cells and sensed by the nerve-ends, so that the message is communicated to the brain. By this means a fish is able to judge with minute exactness the presence of a stone ; the approach of some body in the shape of another fish, an angler wading or treading heavily on the bank, or the influx of a tributary or burn ; and also the set of the current.





Plates 15 & 16

MALE AND FEMALE SALMON

THE DISTINCTIVE DIFFERENCES IN THE HEADS OF MALE AND FEMALE SALMON ARE CLEARLY SEEN IN THE PHOTO.

HEAD OF AN AUTUMN SALMON (11 LBS.)

THIS SHOWS THE HOOK OF THE MALE FISH AND THE WAVY MARKINGS ON THE FLANKS. (SEE PAGE 27.)

All vibrations are felt by this instrument and the message conveyed to the brain is acted upon in a semi-automatic manner. Without an organ of this type it is difficult to understand how any fish could remain in the river, for all sense of direction and position would be absent and in the darkness or in floodtime they would eventually be washed out of freshwater. But we know that, on the darkest night and through the thickest of spates, salmon make their way, unharmed and under perfect control, in and out of the labyrinth of rocks and boulders standing in the way of their return. Blind fish undoubtedly solve their problems in navigation by the aid of the lateral-line cells. I believe this organ also tells fish of the coming of a spate, through the medium of increased water-pressure due to a rise in water near the source that is not yet visible to the observer on the bank. Readers will find more details about this organ on page 66 of *Trout Fishing from All Angles.*

Underneath the gill-covers will be found a system of pinkish fleshy gill-rakers, which are concerned with the business of extracting from the water enough oxygen to keep the blood well supplied. By the opening of these covers a current of water is sucked into the mouth, allowed to circulate round these rays and expelled through the apertures hidden by the *opercula*. If the covers cannot be raised from their seating or the current be reversed, so that the covers are held open by water-pressure, normal intaking of water cannot take place and the fish will die through a form of suffocation. Thus a fish always faces the stream, except when it is swimming down a short distance (even then it may often be observed after a brief time to turn round and get its head once more to the current), and during its descent to the sea as a kelt. In the latter instance, a kelt will do all it can to swim down a quiet pool, so that the water may be forced through the gills in the right direction, and to let itself float, head to stream, down the stickles and rough parts of the river (see p. 32).

The pink colour of the gill-rakers is the mark of a clean-run fish ; in stale fish and in kelts the arches are very pale, emaciated and normally covered with gill-parasites, a picture of which is given in figure 5.

Upon the outer surface of the gill-covers there are, in a maiden-fish, a few yellow-olive, or red, or greenish-grey spots ; but the fish, which has already spawned once, bears on the gill-plates or *opercula*, on the back and above and below the median line, a number of black spots (see pl. 9).

At the extreme tip of the lower jaw in the male fish there grows a sexual characteristic in the form of a hook of gristle proceeding from the lower jaw and fitting into and at times all but penetrating the point of the upper jaw. This hook or kype grows rapidly as the time of spawning approaches and is absorbed when the spent male salmon is on its return to the sea for recuperation. This piece of gristle (gristle being distinguishable from bone by having no carbonate of lime in its composition) is said by some to be used for rooting in the gravel at the time of the making of the redd ; by others it is said to be used as a weapon of offence in chivying off intruders, when the female salmon is extruding eggs in the act of spawning. A shovel of this type of material would not last a couple of hours ; and as a weapon it is peculiarly ill-suited, because it actually prevents its owner from closing its jaws upon its enemy !

The kype is clearly an external sign of sexual maturity, to which no function has been definitely assigned. In the males of grilse and small summer salmon (see p. 48) the hook is sometimes developed only to a small extent, that is to say, before August ; it may even be so small, that the only way to make sure of the sex of the fish is to slit the belly and see if *ova* are present. Occasionally the extra length of the head and a pronounced ' snoutiness ' are safe guides, when the kype has still to grow. In recent years, an objectionable habit has grown up of distinguishing the sexes of salmon by the names of cock and hen respectively. It is a practice with no tradition behind it.

There are very few teeth in the jaws of a maiden-salmon ; six or seven are to be found on the vomer or palate, an occasional tooth occurs on the tongue and around the edge of the mouth. The kelt is extremely well provided with them, although there is no obvious reason why they should need them, as they do not, as was formerly supposed, feed heavily on small fish on the way down to the sea. But the teeth are undoubtedly present, as they are able to wreck any salmon-fly that is not very strongly or specially constructed, such as the Beauly Snowfly.

§ 5. *Vision, taste, smell and hearing.*

Of all the senses fish possess none is so essential to their well-being as the organ of the lateral canal, through the medium of the lateral line. After that comes sight, which in fish is monocular. This means that one eye can be fully occupied with one object while at the same time the other is watching a totally different object. No wonder a fisherman sometimes despairs of getting within range unobserved !

The flies and lures presented to a salmon are mostly seen by direct vision, as they are sunk under the surface of the water. At what distance subaqueous objects can be distinguished by fish from the colours and shapes surrounding them, it is unlikely we shall ever know with accuracy ; but as a general working-rule it is far better to assume a salmon cannot see far and try, in the sunk method, to place the fly near to it. The salmon dry fly is visible under the same conditions and limitations as the floating fly in trout-fishing (see *Trout Fishing from All Angles*, p. 59[1]). The fly, as fished in the greased-line method, is just under the surface and, therefore, is viewed directly and just as an ordinary sunk fly is seen. The degree of accuracy needed in dry fly-fishing is not essential to success in the greased-line mode, to angling in the old manner with sunk fly, or to bait-fishing.

I do not think a salmon connects the presence of fly or minnow with that of the angler on the bank or in the river. A fishing friend of mine told me of an incident that happened to him, at a time when the river was so clear that every movement of a salmon could be observed. He was using the greased-line method and had several times put a fly from below over a fish lying conveniently close into the bank. Every time the fly passed, the fish came up to it ; but one eye was kept on the fly and the other on the fisherman. When it was satisfied the figure of the angler was no cause for fear, it concentrated on the fly, took it and was soundly hooked. This has caused my friend to say a salmon is not frightened by the appearance of a fisherman, but thereby has its attention taken off the business on hand, namely the fly.

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[1] Also *The Flyfisher and the Trout's Point of View.*

I had a strange experience pike-fishing, which made me think at the time that, as a rule, fish do not associate danger with the image of the fisherman in the extended cone of vision (see *Trout Fishing from All Angles*, pp. 61 and 62). I was busy with a livebait in search of a pike of unusual size that was said to haunt the far end of the lake in Wollaton Park, near Nottingham. A small jack had taken the float down several times with the express purpose of playing with it, so that I had tried in vain to hook it. The gudgeon found this sort of play rather rough and refused to swim round any longer. I drew in the line, lifted the bait out to examine it and was suddenly aware of two eyes looking longingly out of the water at the suspended gudgeon. I put a fresh bait on the tackle and practically handed it to the jack—which to my knowledge is still growing in the lake !

The senses of taste and smell are so inter-connected, that if one is absent the other is not present, or is little developed ; neither of these has been shown to be of great importance to the salmon. Possibly the taste or smell of a worm may be borne through the water to its palate ; in a yellow and muddy spate it is difficult to imagine any other means, by which a fish (especially an eel) could get in touch with worms and other forms of bait. The old-time recipes for groundbaits and ‘ irresistible ’ baits for the hook largely relied on the possession by fish of a sense of smell : witness the employment in earlier centuries of asafœtida, oil of turpentine, oil of ivy and other pungent substances. A complete lack of success in attracting fish in this way led to its abandonment. But I still think the formalin and other preservatives used in pickling minnows should be discarded in favour of methods that will neither bleach these baits, nor cause them to smell or have a strong taste.

The sense of hearing is now discredited, as its function is most efficiently carried out by the special organ of the lateral line.

There is also a highly-specialized internal organ in the air-bladder. This is connected with the lateral canal and with other sensitive points of the body, so that the poise and specific gravity of the body can be altered at the owner’s will and also automatically. The process is carried out by the secretion of gas in the bladder, so that it is distended and the fish rises in the water ; or, on the fish wishing to cruise at a lower level the gas already present is gradually absorbed (see *Trout Fishing from All Angles*, p. 56).

Thus the swim-bladder controls the depth at which a fish hovers, the fins undertake the duty of making minor adjustments of position and poise ; the whole body, through the agency of sinuous movements, is responsible for locomotion ; but the lateral line is the guardian of a fish by day and night, in rough water and in smooth, in spate and in times of drought. It interprets impulses and messages for the benefit of the other senses. It feels the most minute changes in water-pressure, which may be due to the approach of another fish and to the movement of its owner near to a rock, to a narrow gut in the river-bed, or to the confluence of a tributary. This organ undoubtedly tells a fish where the most favourable currents are, enables it to keep its position in a river, head to stream, and possibly tells it of the coming of a spate through an increase in water-pressure far too subtle for us to appreciate, until there is a definite rise in water-level. Without the lateral-line sense or its equivalent all fish would be sooner or later swept out to sea.

§ 6. *Of external parasites, etc.*

A salmon acts the part of host to three parasites : the sea-louse (*lepeophtheirus salmonis*), the fresh-water gill-maggot (*lernæopoda salmonea*) and the well-known crustacean, the fresh-water louse (*argulus* species). Drawings of these are given in figures 4, 5 and 6.

The sea-louse was formerly said to remain on a salmon, after the latter had entered fresh-water, for a period not greater than forty-eight hours ; but laboratory tests have shown that these parasites can retain their grip on their hosts for as long as a week. Probably four or five days would be the limit of their duration, when they have to contend with the current and the violent exertions of their host in surmounting weirs. The males of the species are much smaller than those of the other sex. Females, on entering the river, carry long string-like appendages, which are really egg-sacs. These are dropped very soon after entry into the fresh ; but whether this destroys their fertility I do not know. The most usual place in which to expect to find them clinging is the top and dark edge of the tail, occasionally along the side of the tail and also in the dark-olive region on the topmost ridge of the back and on the dorsal fin. They always appear to prefer to lie on a dark part of the fish, the side of the tail excepted.

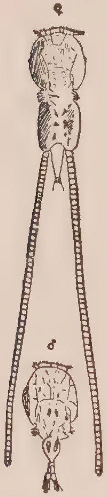


Fig. 4.
LEPEOPHTHEIRUS SALMONIS.
Male and female.

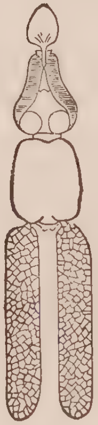


Fig. 5.
LERNÆOPODA SALMONEA. × 4
Female.

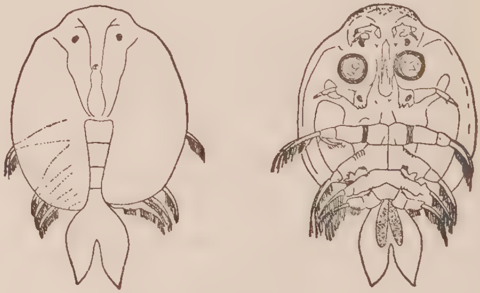


Fig. 6.
ARGULUS. × 8

Upper side or carapace.

Under side showing suckers and egg-cavities.

Argulus is commonly found on many fresh-water fish, such as brown trout, grayling, pike and minnows and also on seatrout. It is an epiphyte, that is, it does not feed on its host, but is content to be carried up and down the river, so that it may be brought within reach of the small organisms, on which it feeds.

Gill-maggots reside on the gill-rays that are just inside the cover and undoubtedly get nourishment from the flesh or blood of their host, or derive their supply of oxygen from it. They are not found on fresh-run fish ; in fact, their presence is evidence of a salmon having already spent some weeks in the river. They remain with their host throughout

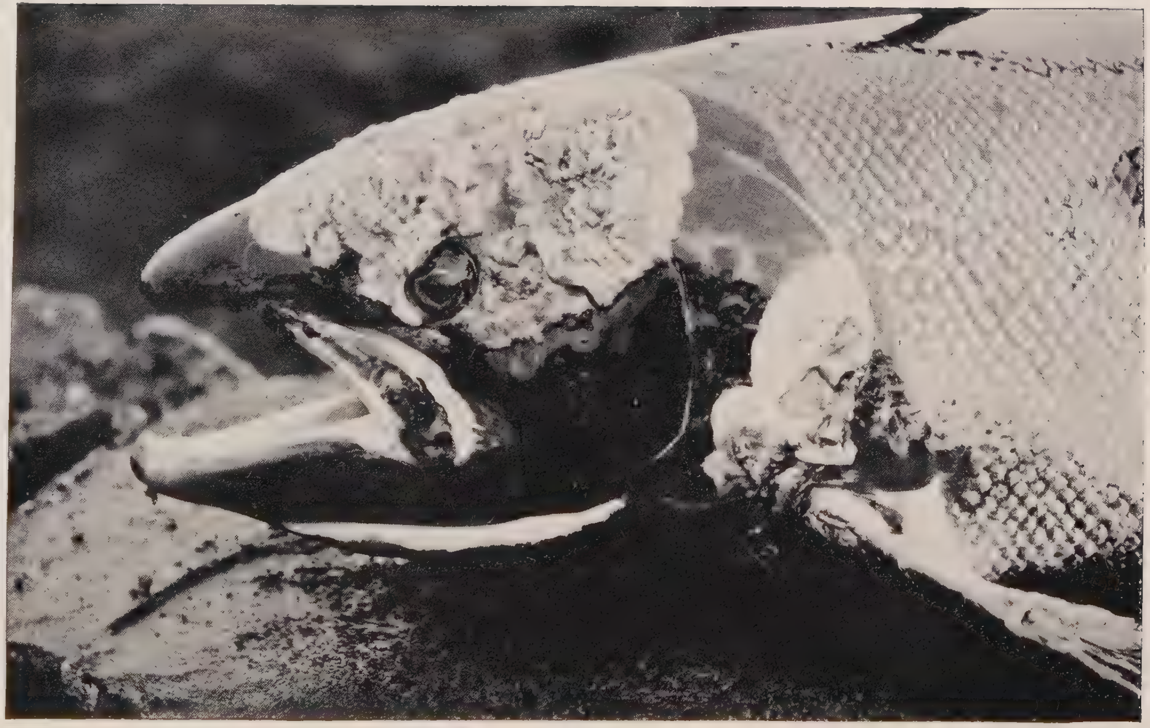


Plate 17

AN EXAMPLE OF WHAT FUNGUS CAN BE

the days of spawning and accompany it on its *katabasis* to the tidal water and generally into the sea. The presence of these maggots in the gills of a putative spring fish has often been the means of saving the life of a well-mended kelt ; although they are frequently found clinging to the gills of salmon on their second return to fresh-water.

§ 7. *The diseases of salmon.*

Fungus and furunculosis are the two main diseases to which salmon are liable.

On plate 17 will be seen what the unchecked ravages of fungus can do, when it gets a firm grip on its victim ; but salmon can have this disease and recover. Only this summer I caught several fish with broad yellowish scars on the nose and back, which plainly told me they had been cured of their attack by returning to salt-water or had been attacked in the sea and had recovered there. Immersion in salt-water or brine is sometimes recommended as a means of saving the life of an infected fish ; and often this treatment succeeds. But how is it that salmon are troubled with the disease in the sea ? If you can reach a diseased fish, dead or moribund, do all you can to remove it from the water ; improvised snatching-tackle should, if necessary, be employed, as the *bacilli* are on the look out for fresh victims and the pool ought, therefore, to be cleared of the dead fish. Do not forget to report the occurrence of fungus or furunculosis to the bailiff or to the Conservancy Board.

Furunculosis is a boil or a series of boils that assails salmon more especially in times of low water and during the early part of the season. You will find one morning, up and down the river, the corpses of a dozen clean-run salmon and no external cause to account for their deaths. If, however, you prod the region with the point of a knife, you will soon discover one of the pus-filled boils, which has given the disease its name. As the origin and treatment of this menace to our inland fisheries is at present under close consideration, I am saying no more on the subject. If you find a dead salmon that is proved to have died from this cause, see it is buried and, if pigs are about, have some heavy rocks rolled above the place where it has been interred !

CHAPTER FIVE

LITERATURE

THE earliest mention of salmon-fishing I have been able to find is in the famous *Treatyse of Fysshynge wyth an Angle*, which was 'enprynted at Westmestre by Wynkyn the Worde the yeare thyncarnacon of our Lorde M.CCCC.LXXXXVI' and was included in the second edition of *The Book of St Albans ;* but who was the author is a question that is likely to remain unanswered.

The amount of space devoted to salmon-fishing is small, which is rather to be expected in days when tackle was hardly strong enough to give any but the most skilful angler much hope of success. Yet several ways are described of taking the salmon which 'is in season from Marche vnto Myghelmas.' 'Fyrste wyth a red worme' at the beginning and end of the season ; 'and also wyth a bobbe that bredyth in a dunghyll and specyally wyth a souerayn bayte that bredyth on a water docke.' The fly was not commonly used for salmon in those days, for the author says it is seldom seen taken 'wyth a dubbe,' except 'at such tyme as whan he lepith' and in the same circumstances under which an angler may hope to be successful in taking trout and grayling with a fly.

'The Samon is the moost stately fyssh that ony man maye angle to in fresshe water.' The wonderful shape and beauty of salmon had already made their appeal to the men who angled for them 'wyth .xv. heeres' instead of with '.ix. heeres' and '.xii. heeres' for the trout and the great trout respectively. There are given in the original edition a number of woodcuts showing the tackles of the period and also the hooks then employed.

A Booke of Fishing, by Leonard Mascall (1590), contains nothing more on salmon-fishing than does the *Treatise*. 'The Salmon is a gentle fish, but he is cumbrous to take : for commonly he is but in deepe places of great riuers and commonly in the middest of the riuer.' The rest of the passage is taken verbatim out of the earlier book. For the most part the diagrams also are copied ; but an original cut is given of a way of putting 'Darce, Roch, or Gogin' on a single and on a double hook flight for spinning or 'trouling.'

There is, indeed, no contribution to the art of salmon-fishing made by the Elizabethan Age, although Gervase Markham, who published in 1614 *The Second Booke of the English Husbandman*, must clearly have owed what original matter was used to the inspiration of that great period. Within this book is *The Art of Angling*, a prose version of John Dennys' *Secrets of Angling* (1613). The same text reappears in *The Pleasures of Princes* (1614) and in *Countrey Contentments* (1631), as it was Markham's habit to use over and over again the materials he gleaned from writers on all subjects relating to life in the country. How much he learned from fishing in the Devon, the stream that flowed through Cotham, where he lived, in the neighbouring Trent, or in the rivers he came across during his soldiering in Ireland under the Earl of Essex it is difficult to say. He has been justly accused of purloining his materials from all sides; but in fairness to the man we must agree with Major Hills, in his able and just summary of Markham's work, that we have reason to be very grateful to Markham for this wholesale robbery, 'hackney writer' though he was. (*A History of Fly-Fishing for Trout*, pp. 43–48.) There is little in Markham concerning salmon-fishing; but the following passage makes me think he had Ireland in his mind when he wrote: 'Now the Salmon hath his haunt in the swiftest and broadest rivers, whose Channels fall down into the Sea.' He, too, is obsessed with the fear of the salmon on account of its weight, when he writes, 'Now, lastly, as touching the angling for the Salmon, albe he is a fish which in truth is unfit for your Travaile, both because hee is too huge and cumbersome, as also in that he naturally delighteth to lie in the bottomes of the great deepe Rivers, and as neare as may bee in the middest of the Channell.' The baits given for the taking of the salmon are those for trout: pastes and flies, worms and the cankers on the water-dock.

There is no recipe for dressing a salmon-fly to be found in any book until the issue of the second edition of Thomas Barker's *Art of Angling* under the title of *Barker's Delight;* of this there are two printings, one in 1657 and the other in 1659, the latter of which is the authority I have followed.

At last a salmon-rod is described: it consists of but two joints, ten feet in length for the stock and six for the top, which must be 'pretty stiffe and strong.' Barker recommends hazel as the material for a trout-rod, whether for worming or for spinning; and presumably this wood served for salmon-fishing as well. Here too is the first mention of a reel and of a top-ring through which the line may run, although the first reference to rings all down the rod is to be found in *The Angler's Sure Guide* (1706). The reel, called a winder, is fastened to the rod with a spring-clip, so that it can be put on wherever the angler finds it convenient. He talks of worm fishing and of 'trouling' with a gudgeon for salmon in a way that leaves no doubt whatever he had done it himself and had 'trouled' for them in the Thames, for the mention of gudgeon as bait is very suggestive. His worming method is to put two lobs on a hook, so that all four ends hang level, and to 'angle as nigh the bottom' as possible, the bait being kept down with a plummet of lead about twelve inches from the hook.

The line allowed the fisherman of those days was twenty-six yards in length! Far too little for a lively fish in the fast-flowing waters of the Spey or the Aberdeenshire Dee, but surely enough in such rivers as the Severn and the Thames, where the current will give little assistance to a salmon held on a line, no weaker than three hairs mixed with three 'silks.' The length of line used and the words, 'The Salmon swimmeth most commonly in the midst of the river,' and, 'In all his travells his desire is to see the uppermost part of the river, travelling on his journey in the heat of the day he may take a bush,' makes me sure all salmon-fishing was for those fish that lay under the bank, where they could easily be reached. Angling for them in the modern sense had not yet arrived. Barker gives directions for turning a running fish, which is given *in extenso* on page 181; and also a very rough description of what the salmon-flies of those days looked like (see p. 324). When, however, it comes to the 'boyling' of salmon, Barker, who was a cook, is far more precise in the matter of detail.

Walton's *Compleat Angler* (1653) contains but little of salmon-fishing, as might be supposed of one whose knowledge of it had been picked up from his friend, Oliver Henly, and from a perusal of Barker. He records an experiment in the marking of young fish. A piece of ribbon or tape was tied to the tail of a fish, so that it might be recognized on its return from the sea; but, as these fish are said to return within six months or so of the time they were marked in the fresh-water, either they have not gone down at all or the fish marked were seatrout smolts, not samlets. He remarks 'he is to be caught, as the Trout is, with a worm, a minnow which some call a penk, or with a fly.' Note well the order of the baits, an order which I believe would have been given by most salmon-fishers of the day because the fly was not a popular method of taking that fish. And we have still to find the earliest recipe for a salmon-fly that we can follow closely enough to be able to dress it.

In 1676 the fifth edition of the *Compleat Angler* was bound up with the only edition of Charles Cotton and the fourth of Robert Venables' *The Experienc'd Angler or Angling Improv'd.* Venables had first appeared in 1662: and there is no doubt he wrote a really good book, backed by plenty of experience in the rivers of Ulster, such as the Bann and the Main. His directions for playing a salmon are full of common sense: 'when you strike him, he usually falleth for to plunge, but will not ordinarily run to the end of the Line as the Trout will.' He is the first to mention double hooks, in this instance because 'young salmons under a quarter of a yard long, have tender mouths, so as they are apt to break their hold.' His travels had brought him into touch with far more angling minds than could have been met with on the banks of the Thames, the Trent and other English salmon-rivers of those days; and the result is a welcome appreciation of the fly as a method of taking salmon. 'The *Salmon*,' he says, 'taketh the artificial flie very well; his Flies must be much larger than you use for other Fish; the wings very long (two or four) behind one another, with very long tails.' But he goes on to say 'his chiefest Ground-bait a great Garden or Lob-worm, he spawneth about *Michaelmas*.' For a fishing-rod he prefers cane to the customary hazel.

Venables was sound in all he wrote; but this advice is as true to-day as when he first took pen and wrote: 'make not a daily practice (which is nothing but a profession) of any recreation, lest your immoderate love and delight therein, bring a cross with it, and blast all your content and pleasure in the same.'

Robert Nobbes, in his *Compleat Troller* (1682), shows he is exclusively a pike-fisher and contains but one remark of interest to the salmon-fisher: 'the best materials for the composure of your *Lines*, is green, or blew *Silk*.' But this is not the first mention of the silkline, as John Dennys, in the *Secrets of Angling*, published in 1613, speaks of the days when 'Lines were made of Silke and subtile hayre and Rods of lightest Cane and Hazell plant.'

If the reference to lines in Nicholas Cox's *Gentleman's Recreation* be taken as criticizing a common practice, there is reason to think Mascall's line was mixed silk and hair. Cox gives his opinion very strongly: 'some intermingle Silk in the twisting, but I cannot approve of it; but a Line of all Silk is not amiss; also a Line made of the smallest Lute-string is very good, but that it will soon rot by the Water.' He also gives the excellent advice that one should 'be sure to give the *Salmon* (as well as other fish) time to go gorge the Bait.' Cox's book first appeared in 1674, but the edition from which the above was taken is the third (1686).

Here is the first great name in salmon-fishing literature, Richard Franck, the Cromwellian trooper. I wish he had realized what the anglers of succeeding generations would want to know. There are so many exasperating gaps in the argument; there is far too little preciseness and the account given is usually too brief, when it really gets interesting and where an exact and detailed story of the fishing of his day would have been most valuable. 'Here's a salmon, Aquilla, that I but newly tickled to death,' makes it abundantly clear that fly-fishing for salmon is quite an established practice; and possibly that is why Franck forgets to describe the fly. The book contains a list of materials in his dubbing-bag and one recipe for a fly, but so scanty are his directions, that it is hard to imagine what it was like (see p. 324). We know, however, the line used in salmon-fishing was still thick at the tapered end, because Franck speaks in admiration of 'Isaac Owldham, a man that fish'd Salmon but with three Hairs at Hook . . .' 'whose Experiments and Collections were lost with himself.'

On the score of many practical hints, *Northern Memoirs*, 'writ in the year 1658, but not till now made publick' (1694), is really good, if you have the patience to sift it well. Much has been said of Franck's turgid style, especially by Sir Walter Scott, who edited *Northern Memoirs* in 1821. But this merely shows a want of tact on Franck's part in speaking of 'that barbarous practice of murdering fish by moonshine, as at other times to martyr them with the blaze of a wisp and a barbed spear' in a book that was to be edited by one who, in his turn, writes of 'the manly sport of burning the water.' What a figure! The man who could see the fires of Smithfield in the hissing torches that rent the velvet of a Tweedside summer night was no dullard. Overburdened with words and often uninstructed in the right way to employ them Franck certainly was; but here and there you will stumble across a quaint saying, a sly, almost arch, comment that will be ample reward for your searching.

The book is the story of a tour in Scotland. He entered by the gate of Carlisle, went to Annan and Dumfries, where he fished the 'Annon,' as he called it, and made his way along the valley of the Loyd, or Cloyd, as he terms the Clyde, until passing through Glasgow he reaches Dumbarton, which was then held by an *English governor*. He fished the Leven that joins the Firth near to the well-known Rock; he then crossed to the east coast by the Isla (wherein he witnessed salmon spawning on a very hot day!) and passed through Forfar to Aberdeen. After traversing the Dee valley and Speyside and reaching Inverness, he returned by the east coast to Nottingham.

An incident that happened on the Annan induced him to write very sagely of 'that secret art of striking, which ought never at any time to be used with violence ; because, with a moderate touch, and a slender proportion of strength, the artist for the most part has best success.' After two hundred and fifty years, it is still touch that makes the artist at the delicate game of hooking a fish ; and to many of us the art is still a secret. On the same page there is this passage, which I find more difficult to understand the more I read it : ' Another caution you must take along with you ; and that is, when you observe your game begin to make an out ; that is, when he bolts, or when he launcheth himself forth to the utmost extent of your rod and line, which a well-fed fish at all times frequently attempts, upon the least advantage he gains upon the angler ; be mindful, therefore, to throw him line enough.' This may mean letting a fish run as it wishes to in the ordinary course of playing it, or the giving of slack to turn it, or the slacking of the line as the fish jumps or ' launcheth himself forth.' The playing of a fish, so that it shall tire itself out by being forced to fight the current and the moderate but unrelenting tension of the line, is strongly urged and is summed up in this delightful figure : ' and the fish himself acts the part of the felon, that puts a knife to his own throat, wherewith he secretly murders himself.' And to get the salmon on to the bank there is ' the landing-net, or the landing-rod,' or gaff, along the handle of which is notched a scale of inches to measure the salmon's length.

It is interesting to compare the view here expressed of a salmon taking out all the line with that of Venables. I am tempted to attribute the lack of agreement to their experiences on streams of vastly different types (see p. 62).

In Franck's book you will find expressions that have passed into the everyday language of the waterside. ' I see something make a show,' said one of his companions, as they stood by the river trying to spot a salmon. And here is something quite modern in the art of salmon-fishing (see p. 241) : ' dibble but lightly on the surface, you infallibly raise him.' At least, he did not, as did Belton, feel obliged to use the Waltonian misnomer, ' rise.'

Of spinning there is a short account in which he tells how the minnow is ' displayed with a swivel at mid water ' and of a method of dragging it very suggestive of sinking and drawing.

' Humour but the fish and you have its life, and that's as much as you can promise yourself ' : there is a dryness about Franck's humour not usually associated with the East Midlands and Cambridge, where he was born ; it is of the kind best understood in the north of England.

Besides his description of fishing, there are several good stories laboriously told and a first-rate description of the streets of ancient Nottingham, the accuracy of which I was able to check the week before these lines were written.

In short, Franck is the first true writer on salmon-fishing and the angling world had to wait a considerable time before the next appeared. His *Northern Memoirs* is full of good things covered over by some intolerably bad philosophy and often presented in foolishly pedantic and complex language. They are, at times, buried so deeply, that they can hardly be unearthed by those who are, in Franck's phrase, ' as indigent of patience, as the man that hanged himself, because the hangman was not ready.'

James Chetham, of Smedley, near Manchester, published the first edition of *The Angler's Vade Mecum* in 1681, some years prior to the appearance of Franck's work, but I am satisfied *Northern Memoirs* was written when its author said it was and have therefore given it priority. Chetham owed much to others, especially to Venables. There is only one short passage in the book concerning salmon that is really worth quoting. 'For Flies, he takes the same that the Trout generally doth, whether Natural, or Artificial.' If the reader will turn to the index of this volume, he will be able to follow out the idea of salmon taking the natural fly of the moment. This statement is by far the most vital thing Chetham has to offer to salmon-fishers, although one can just dress a fly by his directions, if one adds Franck's hint, 'the dapple feather of a teal' (see p. 324).

Here is a list of the modes of taking salmon at the end of the seventeenth century. 'He's caught at Ground with running Line or Float, the Bait touching, or as near the Ground as possible ; and, sometimes he bites well lower than mid Water, at Ground Baits. He's caught with Dub-fly, Cod-bait, Clap-bait, Water-cricket, Oak-worm and Counterfeit Cod-bait at the top of the Water.' The 'water-cricket' is the stone-fly. 'The great Salmon will take Minnows and Loaches sometimes. . . .' I am willing to believe in the efficacy of the first and the last two baits, but for the rest, it is quite plain Chetham has copied trout-baits from someone's book and thought they would, as Markham said, do also for salmon.

As regards any startling advance in the art, the first half of the eighteenth century is scantily represented in fishing literature ; R(obert) H(owlett) (1706), Giles Jacob (1717), James Saunders (1724), the author of the *Gentleman Angler* (1726) and Richard Brookes (1740) are the only names of any consequence, unless inclusion is made of Richard Bowlker, whose undated work has on the strength of a date written in ink on the title-page of the Bodleian copy been assigned by that library to the year 1747. The date given to the first edition by the British Museum is one year earlier still.

The Angler's Sure Guide is a medley of things borrowed from earlier men and ideas either of the day or of the author's own discovery. He is the first to mention the use of rings throughout the rod. The stock is fitted by driving into it loops of wire, in shape much like the modern staple. The top rings are made of finely annealed brass wire bent to make an eye and whipped to the rod with fine silk. Eighteen foot is the recognized length of a rod in his day, the top joint of which is 'impt' with whalebone. He tells his readers that Indian Grass is far stronger than single hair, however carefully chosen, and gives directions for its preparation in the skimmed fat remaining in a pot after fresh, but by no means salt, meat has been boiled. What this Indian or Sea Grass exactly was has long been a mystery.

A piece of this substance has now been discovered amongst some letters that passed between Pennant and Gilbert White. It has been identified by the authorities at Kew, to whose courtesy and to that of Major Hills I owe this information, as a preparation of jute. From the same source I learnt that Chinese Twist, which is said to be about a hundred and fifty years old, was composed of silk fibres, unscoured and just as they came from the cocoon, stuck together to form a line. This is practically the same as modern Japanese gut-substitute.

On page 116, the author gives a novel method of fishing for salmon on dark nights. 'You may also angle thus in the Night, with black, or white large Dew-Snails, etc. This sort of Angling is called Tipping for Trouts.'

In Giles Jacob's *Country Gentleman's Vade Mecum* I can find but one interesting point: 'a Salmon will likewise sometimes rise at the *May-Flies*; when you are to manage your Matters very tenderly, to preserve your Lines.'

James Saunders (*The Compleat Fisherman*) was the first to mention silkworm gut; but there is no reason to suppose it had already come into general use, especially as Indian grass survived as the alternative material for casting-lines, until the end of the century; and is even mentioned by Ronalds (1836) as a substitute for silkworm gut. The *Bibliotheca Piscatoria* made reference to an article that appeared in the *Field* and gave a quotation from an advertisement of Bowness', dated 1760; in this silkworm gut is described as a *new article* that is to be had at the shop in Bellyard. His opinion, however, of fly-fishing for salmon was so poor, that he was led into saying the 'sport is not worth the Patience.'

The Gentleman Angler is attributed by Dr Turrell to George Smith, the author of *The Angler's Magazine* (1754). The salmon-angler may read it without learning much from its pages.

'*The* North *bad*, East *worse*, West *good, but the* South
'*Blows every Bait into the Fish's Mouth*.'

Here is the first mention of the well-known jingle. Very fortunate, one feels, that south rhymes with mouth! Live-baiting for salmon is recommended as a successful mode of angling; and, when a fish *sulks*, he counsels patience. But the most interesting passage concerns what reads like the dropping of the rod when a salmon jumps. 'He will be apt to spring, or leap out of the Water; at such a Time, allow him Line enough.'

There is much uncertainty about the date when Richard Bowlker published at Worcester *The Art of Angling Improved in all its parts*; but it is generally assumed it was 1747. The editions that followed were claimed by his son, Charles, as his own work. Salmon-fishing receives but little attention. There is a description of the natural 'King's Fisher or Peacock Fly' and the 'Dragon Fly' in an attempt to produce the prototype of the large artificial salmon-flies of the day. The way to imitate these insects was not given before the edition of 1826; but we can safely assume the patterns then described were really much older, possibly dating from the first appearance of the work, in which there occurs this passage: 'a large gaudy artificial fly, which they probably mistake for a gay Libellula, or Dragon Fly.' Both these flies were mentioned by Brookes (1789). Yet again there is a reference to the natural basis of salmon-flies: 'the angler should imitate principally the natural flies found on such rivers where salmon abound.' Bowlker states that 'a raw cockle, or muscle, taken out of the shell, prawns, minnows, & worms, have also been recommended as Salmon baits.' Cockles were fished by throwing them across, beyond the lie of the fish, into the shallow, so that the current shall carry the bait into the hole where the salmon is lying. Give time to pouch the bait, then 'fix the hook by a gentle twitch.'

Richard Brookes' *Art of Angling* was published in 1766; but there was an earlier book written by the same man under the name of *The Art of Angling Rock and Sea Fishing* (1740). In the later work is to be found all that concerns salmon-fishing. Brookes is the earliest writer to mention prawning and says that cockle-fishing was practised in the Western Isles of Scotland and in the Medway, in Kent. 'In most of the Salmon Rivers of *France*,' he says, 'they use Prawns, or Muscles, taken out of their shell'; and he gives also the usual list of baits, namely, lobworms, a pair of dew-worms, dace, gudgeon, bleak and minnows. Chetham's 'Horse-leech Fly' is referred to (see p. 324), but no other pattern is described or named.

There are some woodcuts of hooks, from which it is clear he likes a round-bend hook with a slightly projecting point rather than a true sneck.

One piece of advice contained in his directions for playing a fish is well worth keeping in mind: 'have him not too near the Top of the Water, lest by flouncing he break your Line.'

The century closes with a good practical treatise, composed, as the author, Thomas Best, admits, of the experiences of others. The *Concise Treatise of the Art of Angling* (1787) is well worth reading, if only for the account of fishing in the Thames in those days.

The nineteenth century opened brightly with names such as Taylor, Snart, Mackintosh, Salter and Bainbridge; Sir Humphry Davy followed in 1828; there was a gap until 1834, when George Agar Hansard appeared; and from then up to 1851 books were steadily being written, at intervals no longer than two years. And amongst these score of writers there were some to whom in one way or another we owe a great deal. They did not advance the art of salmon-angling very much, for the methods were still very like those of Franck and Bowlker.

There had been refinements in tackle, gut had come in and men had thought deeply about the shape and temper of hooks; but the line was still of horsehair or of horsehair and silk mixed, which *Ephemera* recommended as late as 1850. The rod was made from whole bamboo or from hickory; greenheart, the wood that was imported from the Essequibo River, in British Guiana, was not favoured, possibly because it was found more liable to snap than hickory. Clarke considered the best material for rods to be hickory and much preferred it to lancewood; and it is interesting to note as early as 1839 a liking for as few joints as possible in the rod, even to the point of wishing to have a one-piece rod. Clarke was very up-to-date in many things, yet he used a line made of a mixture of silk and hair. But the usual length for a salmon-rod was eighteen to twenty feet, although O'Gorman, in 1845, mentions old Blackwater rods that were twenty-five and even twenty-six feet in length! The earliest mention I can find of a pure silk line (undressed, of course) is by O'Gorman, who says the eight-plait silk line was just new in 1845; but that may only apply to Ireland or the district of Ireland in which he lived. In the same book there is a note about the eyed hook, which is quoted on page 113 of the present volume. Salter's *Anglers' Guide* (1808) gives a woodcut illustration of a reel; Clarke mentions that he dislikes the multiplying reels of the day and probably with good reason ; while Taylor contents himself, if not his present-day readers, by saying the reel should contain enough to allow the fish to cross the river. But when Kirkbride (1840) is consulted, a far more advanced knowledge of tackle is found ; the reel is to contain one hundred yards of line, either of silk mixed with hair or of hemp, an unhallowed union of two materials with different stretching-factors. Hemp appears to have functioned as backing, because the angler is told to fit to it a horsehair line, eighteen to twenty hairs thick and thirty to forty yards in length. But the casting-line was treble gut looped to the single gut, upon which the fly had been tied. The rod was about eighteen to twenty foot long and enabled the fisherman to cast up ' to thirty yards down the river.'

The position of fly-tying in this period will be found discussed in detail on page 325 *et seq.* But Salter's remark (p. 259) sums it up well, for the new ways of dressing were spreading but slowly. ' The artificial flies, sold at the fishing-tackleshops, are principly made from the directions given by Bowlker, of Shrewsbury ; and, perhaps, have been but little improved during the last century.' He goes on to recommend the works of Bainbridge and Captain Williamson (1808).

Samuel Taylor's *Angling in all its Branches* (1800) is a book worth looking through, if only for its technique of fly-tying. Besides that, he gives his opinion on hooks, the best of which he considers are made in Limerick, in Ireland. Straight points and tapered shanks are the things he looks for in a hook ; he will not have any snecking in them, because he considers this bend causes a wobble as the fly swims through the water. He is the first to mention a vice as an aid in tying flies. There are recipes for salmon-flies : three sombre patterns, which he advises for use in spring and autumn, and several patterns for summer angling, which he terms *gaudy*. It is strange how this term ' gaudy ' survives, right up to the end of the century. The origin of it, I believe, to be the remark in Venables : ' Also he delights in the most gaudy and Orient colours you can choose.' It is applied later to the Irish flies that invaded Scotland and ousted the sober and, as Webster puts it, ' hodden-gray ' patterns native to those parts. It is interesting to note on page 250 that salmon ' will often take common trout flies.'

The Driffield Angler, by Alexander Mackintosh (1808), is devoid of real interest for the salmon-fisher, except in respect of its fly-tying. There is nothing novel in tactics or in tackle. The rod he recommends is eighteen foot long and made up of four pieces, the fly-fishing top of which gives place to a stouter one when the angler changes his mode to that of spinning. In short, the rod is a general rod. The tip is of whalebone, six to nine inches long ; this provides the extra resiliency when a fish takes the bait particularly hard.

Of Salter's *Angler's Guide* (first published in 1808) there is little to say. He is primarily a London angler, in the Thames and in the Lea (or should it be spelled Lee ?) at Broxbourn, Hertfordshire. But his woodcuts illustrating coarse fishing are too good to be missed because our quest at the moment is salmon. There are interesting cuts of the tackle of the day, including those of three salmon-flies (7th ed., 1830). I give only one quotation here. ' The Salmon is a fish which is seldom taken by the Angler in South Britain. In Ireland and Wales, as well as in North

Britain, the art of Angling for Salmon is much practised, and well understood ; . . . the artificial flies used, are neither numerous nor difficult to make.' Those were happy days, before the advent of *Ephemera*, Kelson and other fly-creators !

The methods of fishing given are typical of the period : the baits are fly, ' raw muscle, prawn, or cockle, taken clear from the shell,' which were fished with a leger, a small fish as in trolling for pike ; and a couple of well-scoured lob-worms.

CHAPTER SIX

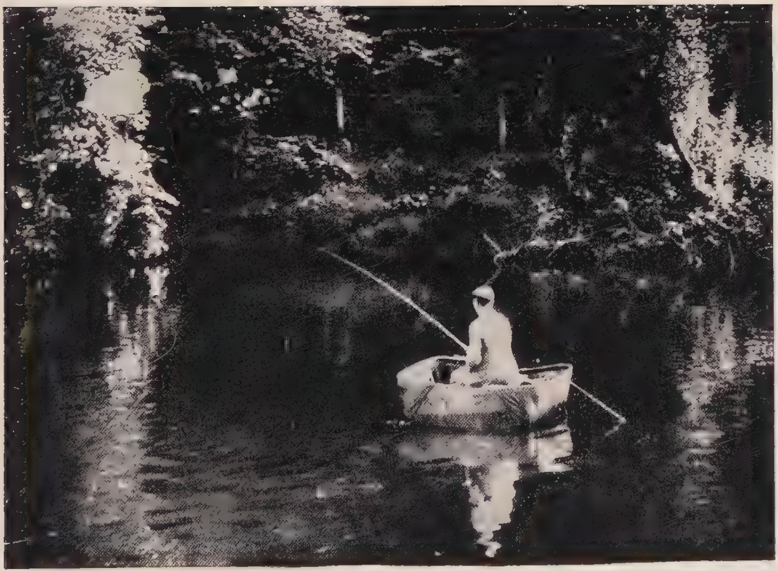
LITERATURE (*continued*)

ONE of the landmarks in the literature of salmon-fishing is George Bainbridge's *Fly Fisher's Guide*, which was published in 1816. It was the first book to contain coloured plates of artificial salmon-flies, a reproduction of one of these will be found in plate 60. The patterns described in the book will be discussed later, on page 327. At the moment it is enough to see what tackle he advised and what was the actual practice of salmon-fishing of the day.

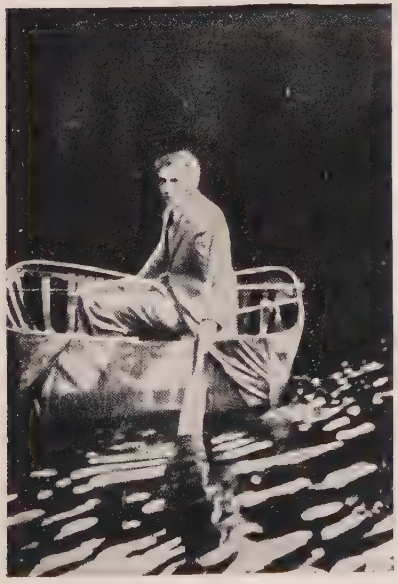
The rod was seventeen to eighteen feet in length, pliant and tapering. It was made up in five joints, fastened with ferrules that screwed together. 'The best rods are made from ash, hickory and lancewood,' in this order from the butt upwards; but he liked bamboo for the tops, if it could be procured good. Logwood or Campeachy wood was also used for tops, but was rarely to be obtained straight enough in the grain. 'Rose wood, and a wood from the Brazils, called partridge wood, may also be made use of for top pieces; but yew and briars do not answer the purpose, although frequently recommended by the experimenters.' The tip of the rod was to be finished with whalebone, only four or five inches in length; a common fault in rod-makers of the day was to use more. The varnish employed was 'best copal varnish, or Indian rubber dissolved over a slow fire in linseed oil.'

Lines were to be bought in many shops in lengths up to one hundred and twenty yards and even more; for salmon they were made level throughout, which was quite practical, because a tapering casting-line, ten yards long, was looped to it. The material of the line was usually a mixture of hair and silk.

Five pages were devoted by him to hooks and to a discussion of the comparative merits of the Limerick (the common variety, I think), which he considered a bad hooker; the common Kendal, good in shape but with the fault, by no means rare in some hooks to-day, of having the actual tip of the point too far from the bend, that is, too long in the point; the sneckbend, the objection to which is rather obscure; and the straight Kirby hook, which he thought 'approaches the *desideratum*, in shape and temper, nearer than any other manufacture; unless the Kendal could be improved in the form of the barb, and divested of the superfluous length of the point.' The coloured plates, showing the hook-shapes, illustrate the heads of his criticism very well. There are sound directions for choosing gut and hair; it is also worth noting that he dismissed the Indian weed with a short paragraph, on the ground of its brittleness and because it had to be soaked for at least an hour, before it was ready for use (see p. 65). The multiplying reel was definitely



Plates 18 & 19



CORACLES WERE EMPLOYED IN BRITAIN AT THE TIME OF THE ROMAN OCCUPATION, ARE CHIEFLY ASSOCIATED WITH THE WELSH DEE, WYE, SEVERN AND USK AND WERE CARRIED, THEN AS NOW, OVER THE SHOULDERS, WITH THE HEAD SUPPORTING THE UPPERMOST THWART. A FEW YEARS AGO A CORACLE WAS ALWAYS CONSTRUCTED OF A HAZEL OR ASH FRAME OVER WHICH A TARPAULIN WAS STRETCHED; THIS WAS THEN TARRED HEAVILY AND ALLOWED SEVERAL MONTHS TO DRY AND HARDEN. IN THE MOST MODERN PATTERN ALUMINIUM STRIPS REPLACE WOODEN LATHS. PLATE 19 SHOWS HOW THE PADDLE SHOULD BE HELD, THAT IS, WITH A STIFF WRIST AND AS THOUGH IT WERE PART OF THE ARM. A BEGINNER GENERALLY TRIES TO ROW OR TO PADDLE A CORACLE AND IS SURPRISED TO FIND HE CAN GET NO WAY ON NOR ACHIEVE ANY MEASURE OF CONTROL, UNTIL HE BEGINS TO MOVE IT WHERE HIS EMPLOYED SHOULDER IS POINTING. PROGRESS IS THUS MADE 'SIDEWAYS', REMINISCENT OF THE MOTION OF THE OAR IN 'SCULLING' WITH A SINGLE OAR OVER THE STERN OF THE BOAT; AND THE TRACK OF THE BLADE IS A FIGURE OF EIGHT. IN THE MAIN STREAM, THE DUTIES OF THE PADDLER ARE TO GUIDE THE CORACLE, SO THAT IT AVOIDS ANY JUST-SUBMERGED ROCKS, AND TO HOLD IT UP A LITTLE, AS IT PASSES THROUGH A FAVOURITE AREA. IF HE WISHES TO ASCEND THE RIVER, HE MUST HUG THE EDGES AND GO WHEREVER THE STREAM IS WEAKEST. THE USUAL MANNER OF HOLDING IT AGAINST THE CURRENT IS BY SECURING IT TO A TREE WITH A LONG ROPE, WHICH IS PROGRESSIVELY PAID OUT, OR WITH A STONE ATTACHED TO A ROPE, WHICH FUNCTIONS AS AN ANCHOR THAT CAN BE LIFTED AND DROPPED AS DESIRED. THE USUAL LENGTH FOR THE ROD EMPLOYED IN THIS FISHING IS TWELVE FEET. WHEN A SALMON HAS BEEN HOOKED, IT IS USUAL FOR THE FISHERMAN TO BE LANDED, SO THAT HE CAN PLAY IT FROM THE BANK; BUT OCCASIONALLY HE WILL BE FORCED TO FOLLOW IT DOWNSTREAM. (SEE PAGE 72.)

said to be unsafe to employ in salmon-fishing ; and no doubt he was right, for the mechanism of the gearing would be ill-designed to stand the tension of a fighting salmon.

Bainbridge was obviously an all-round fisherman, who believed in doing, or at least in being capable of doing, everything for himself. Accordingly he gave directions for dyeing feathers, mending tackle, tying flies and twisting lines and accomplishing the hundred and one other small tasks that belong to fishing. Further, he fished with the fly in preference to spinning or worming and knew intimately the rivers of North Wales and the North Tyne. Once again there is a reference to salmon rising to the natural fly. ' And it will sometimes happen that a Trout-fisher with *small* flies, will succeed in raising the fish immediately after an Angler prepared for Salmon-fishing has thrown over the spot a dozen varieties of large flies.' He goes on to state that, one morning, he raised five fish on trout-flies, two of which he succeeded in landing and the largest of which weighed sixteen and three-quarter pounds and was thirty-three inches long. His directions on playing a salmon are sound and almost modern.

Bainbridge was the first of a new era of salmon-fishing, in which this branch of the art is coming into its own kingdom and is not merely an appanage of the art of trout-fishing. A separate technique is growing ; out of this may be formed the ideas of salmon-fishing, current in the later nineteenth century, which tended to force the two divisions of angling farther and farther apart, until they demanded almost exclusive attitudes of mind. I shall be surprised if the near future does not bring them together again with natural flies the common ground.

Salmonia, which followed in 1828, was written in the conversational form, used with such success by Walton. Whether it is true, as the *Bibliotheca* suggests, that Sir Humphry Davy's failure is due to a lack of *naïveté*, which is so great a feature of *The Compleat Angler*, it is hard to say ; but everyone has come to grief who has attempted to write in the style that Walton made his own.

Three of the nine days into which the book is divided deal with salmon. Davy, a man of exceptional ingenuity and power of invention, records, in his description of fishing on the Awe, several points of great interest to modern anglers. His definition of a perfect salmon-day is one that is fresh, cloudy and with a little breeze. For the bright moments of the morning a dark fly should be used, but changed to a bright and gaudy one, as soon as it is apparent the sun will be under a cloud for a considerable period.

He goes yet further and directs a change of fly, on some occasions as often as three times, to suit different depths in the pool. ' *Poiet.* I thought I saw a fish rise at the tail of the rapid. *Hal.* You did, he refused the fly. Now put on a fly one third of the size and of the same colour, and I think you will hook that fish.' *Poietes* does, but loses it through the hook straightening out, which leads to a discussion on the makes of hook then in vogue. Davy's opinion of London and Birmingham hooks is distinctly unfavourable ; he is all for the real O'Shaugnessy Limericks, which ' neither break nor bend.' It is interesting to read that ' salmon often in this season haunt the streams in pairs ' (the time of year was mid-July) ; and that Davy thought it likely that a salmon rose at the artificial fly, not because it was used to the dragon-fly or *libella*, but because it had a recollection of feeding on the natural flies during its life as a parr. It is also worth noting he had no false ideas about the true nature of parr or about the way they migrated, as smolts, to the sea for feeding. How then did this stupid controversy about the identity of parr with young salmon ever arise?

His summary of the rivers in the British Isles is worth reading carefully, especially his inclusion of Tweed, Tay, Dee and Don in the list of rivers that *have been*. The reason is not stated.

Trout and Salmon Fishing in Wales (1834) by George Agar Hansard is a book that peculiarly delights the man who has fished here and there in that country and finds quaint remarks about places he knows; but there are two interesting patterns of salmon-fly described very lucidly, to which I refer in another chapter (see p. 327).

At some time Hansard had been down the valley of the Dee and had seen coracle-fishing. He relates how the natives fish from these with a line only half as long again as the rod and how 'salmon, eight or ten pounds in weight, have been frequently killed out of coracles without one' (viz. a reel); but he forgets to mention that, in playing a salmon, Dee coracle-men would probably follow their fish down, as I have often seen done during the last ten years (see pls. 18 and 19).

The Angler in Ireland was published anonymously in the same year; the name of the author, however, has from other sources been discovered to be Belton. It is largely a book of incidents that cropped up during a protracted visit to that country and the only points of angling interest are concerned with fly-dressing and hooks. The engraving, which forms the frontispiece to the first volume, is quite the most astonishing picture of playing a salmon I have ever seen. It must be seen to be believed!

The Art of Angling as practised in Scotland (1835) and *The Angler's Companion* (1847) by Thomas Tod Stoddart are interesting and well-written books. The second contains information of the fishing of the day that is not to be found anywhere else. The practice of fishing for salmon and for trout, fly-dressing, tackle-making and mending, the philosophy of the salmon-fly and a survey of the rivers and lochs of Scotland are all treated in an exhaustive and painstaking manner. In his description of the pools on the Ballater-Banchory length of the Aberdeenshire Dee I was surprised to discover the great antiquity of the modern names. Blue Chain (Chair to-day), Strathseven, Woodend, Grey Mare, Sautveet (Salt Vat to-day) and Glister are words that hold for modern fishermen the old romance.

There is little of practical value in Colquhoun's works, the best known of which is *Salmon Casts and Stray Shots* (1858) and *The Moor and the Loch* (1840); these books carry one over the border into the country of the naturalist.

The next book of importance is written round Carlisle and the western end of the Wall.

John Kirkbride was, as he delightfully styled himself and with some pride, 'but a poor tackle-maker.' He lived in Carlisle and fished the Eden, the Irthing and the Caldew as his home streams. What he has to say is well worth saying; and there is no doubt he was right, when he wrote in his preface, that it would have been quite easy to puff out the work with instructions useless at the waterside. He gives but little and yet is surprisingly comprehensive, he writes lucidly and in a pleasant style.

The title, *The Northern Angler* (1837), exactly describes the book. In it Kirkbride cautions the angler against striking when a fish rises, for fear of pulling the hook out of the mouth of the fish. You must keep the rod-point up, as soon as you have hooked a salmon, if you would avoid having your line *drowned*, which robs you of the power to stop the fish entangling your line in a snag and so gaining its freedom. The directions for playing a fish are, on the whole, sound and would apply to modern conditions, but I think few anglers would care ever to follow his advice and control the line by letting it slip through the fingers of the left hand, while a fish is running. Kirkbride, however, clearly recognized how dangerous, as well as painful, such a procedure might be. After setting out in some detail the Ballyshannon fly, he calls it one of the fancy flies that 'are great favourites in Ireland, and *even* in some parts of England and Scotland.' The new ideas in salmon-fly dressing are slowly drifting eastward over Saint George's Channel.

The Angler's Desideratum (1839) was written by Captain Clarke, R.M., and it contains within forty-eight *duodecimo* pages a great amount of useful information. It is refreshingly written and the author was patently one of enquiring mind and not disposed to accept things, because someone had said this or that. 'And when the rivers are very small, I have taken salmon with a midge-hook. . . .' Compare this with Taylor (see p. 68). His method of preserving minnows is worth quoting, although I have no idea whether it would give as good results as he claims. 'Take a pretty-sized box, half fill it with the finest salt, and as you catch the minnows, put them into it ; close the box and give it a shake, which immediately kills and covers them with salt. Exclude the air from them, they will keep several months, and appear as if just caught.' In his trolling-tackle he puts small leads on each side of the two swivels with which he fits the trace and beyond the flight-hooks fits a flying-hook ; the function of this is to foul-hook a salmon that does not get hold of the bait properly. He gives diagrams of this and of a tackle for live-minnow and parr-tail fishing. His account of the manufacture of silkworm gut and of oval tinsel and thread is, as far as I know, the earliest.

John Younger lived in Kelso on the Tweed and, in the intervals between the hours of cobbling, he fished for salmon and trout and wrote, in 1840, a very good book about them : *River Angling for Salmon and Trout ;* it was re-issued and much enlarged in 1860.

He says that Irish flies were first introduced 'thirty years ago' and, if that applies to the date 1840, this remark places their first introduction at 1810. He goes on to say the new patterns are preferable to the native flies in coloured water and that grilse come better at the brighter flies ; but, when the water drops, the sober patterns of the Tweed are more killing. 'New run grilse certainly prefer them, as I have found them always fonder of a bright fly, with glittering tinsel and strong colours, even white hackles, than heavy old-run salmon are.' The reason given is that grilse travel high and just under the surface, while the heavy fish keep low, unless they are attracted upwards by a gaudy fly. When the water clears, the sober patterns are good enough, so that he discourages the employment of tinsel-bodies or tinsel-ribbing on small low-water flies. Once more is the old theory enunciated: 'These flies' (March browns) 'they feed on in low water exactly as the trout does.'

He deals with worm-fishing and gives a list of the Tweed salmon-casts and pools; but one expression of his I cannot resist quoting. He is pointing out how important accurate casting is and speaks of 'laying a fly to the eye of a salmon.'

One of the most entertaining angling works of the nineteenth century, notwithstanding its conversational style, is *The Fly-Fisher's Text-Book*, by Theophilus South, otherwise Edward Chitty. There are several original features: a mention of contracted reels for salmon-fishing, because he liked to be able to wind up quickly; a telescopic handle for a gaff, formed like that 'of a drawing-room hearth broom'; the filling of the bottom of the spool of a reel, when the line is too short to fill it, by putting on, first of all, some cork or some turns of thick twine and 'thus gain the advantage in speed of winding up'. He is the earliest author I have discovered who mentions wading-boots, presumably made of the mackintosh material to which he alludes, and also boots made entirely of pure rubber, which were made by a firm in the Strand for the Marchioness of H——. I do not recall having read in an earlier book of women being keen anglers for salmon! His knot-diagrams are the best that had ever appeared (see fig. 22); and he was undoubtedly the first to draw plans of a pool, showing the set of the currents and the right way to fish it. There is plenty of good instruction in the ways of angling best suited to various pools on the Conway, near Trefriw, some good patterns of salmon-flies, one of which will be seen in plate 60, and valuable notes on contemporary hooks.

Blacker's work was published three times, in 1842 as the *Art of Angling, etc.*, in 1843 as *Blacker's Catechism of fly-making, angling and dyeing* and in 1855 as *Blacker's Art of Fly-Making*. They are much alike, although in the last edition twenty plates of flies and tackle were added. The 1855 edition (the only one I have been able to consult) is an extraordinary mixture of ideas, sound and otherwise. I have worked through the directions for fly-tying and have followed as best I can his references to the figures in the plates and can honestly say I have rarely had my patience more sorely tried. On the whole, however, I do not think he advanced the art of tying salmon-flies. He was considered the most wonderful dresser of his day; but his methods were clearly adapted to those few who have, in full measure, the supreme genius and gift: a mastery over the materials with which they work, obstinate though fur and feather may appear to us lesser folk. Judged by the standard of the flies shown in Jones' plates (see pp. 77 and 332), Blacker was somewhat behind the times; but his fame was great from Cork, where he was born, to Dean Street, Soho, whence he dated his books. Some points of interest in fly-dressing have been reserved for another chapter (see p. 329).

Days and Nights of Salmon Fishing in the Tweed (1843) was written by William Scrope. Here is one of the greatest names of salmon-literature. Its charm of style, its anecdotes and its descriptions are unequalled. The actors in the dramas that are opened before us live in Scrope's words; and, above all, the book was the soundest that had appeared and was to appear for two generations; there was nothing to equal it, until Mr Chaytor's book arrived (see p. 84). I hardly care to give extracts,

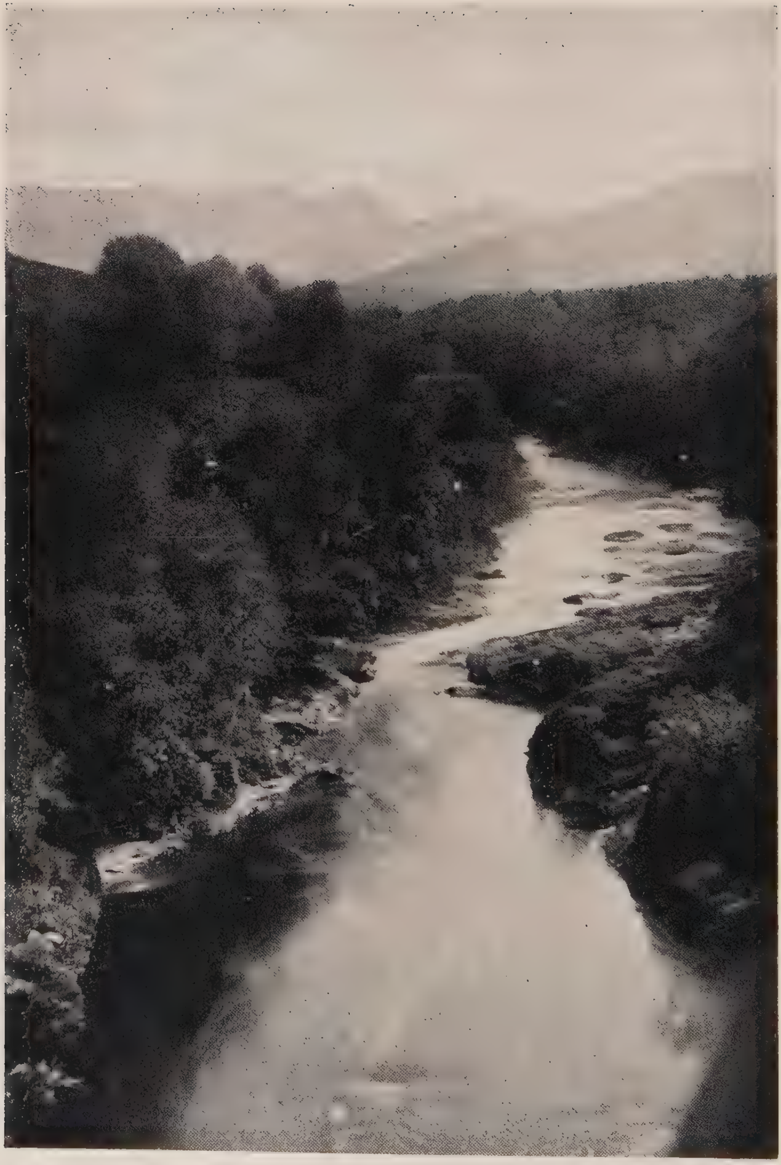


Plate 20

SPEAN

A VIEW TYPICAL OF MOST OTHER HIGHLAND SALMON RIVERS BOTH FOR THE SCENERY SURROUNDING IT AND FOR THE STYLE OF ITS FLOW.

lest I mar your pleasure in reading the book, for you must read it or forfeit any right you might otherwise have acquired to be called a salmon-fisherman in the true and full sense of the word. Scrope offers a sort of spiritual regeneration and, when you have accepted it, you are a different man ; you may fish more successfully or not, but at least you will fish with greater understanding, because you have placed yourself in direct descent from the great fishermen of the past.

Scrope's opinion on choice of pattern is extremely interesting. 'My rule has been to adapt my fly, both as to colour and size, to the state of the water : a large fly with sober colours for deep and clear water, and a smaller equally unassuming, where it is shallower ; in the throat of the cast, and as long as it continues rough, a large fly also ; at the tail of it, where the water runs more quietly and evenly, a smaller one serves the purpose best. Thus you should change your fly in every stream once or twice.' This is a sound practice to-day, if no one is waiting impatiently for the use of the pool ! But even then, I think one ought to fish a pool with intelligence and not merely as an automaton. The unvarying rule of fishing by time and step turns a salmon-fisher into a pegged-down competitor in a fishing-contest.

Scrope fished a soberly-dubbed fly in preference to the gaudy patterns then coming into general favour, a fact which is demonstrated in his list of six flies. A coloured plate of them is given in the Maxwell edition of Scrope, published in 1898 (for a reproduction of one of these, Toppy, see pl. 60 in this volume). He dislikes London hooks and puts all his faith in 'old Kirby, whose hooks would not have broken in the mouth of a shark.' The tackle is a rod eighteen to twenty feet in length, a blue silk line (not oil-dressed in the manner of Hawksley and of Kelson) and a gut casting-line, dyed to suit the conditions of water. Scrope used to go into the river without waders, as indeed did most men of the period ; but mackintosh waders were already on the market—at a price. He gives, as his limit in wading, 'the fifth button of the waistcoat'—presumably counting from the top !

There is an account of what is very nearly dry-fly fishing and strangely reminiscent of Mr A. H. E. Wood's early experience in Ireland (see p. 238). A white butterfly was seen fluttering over the river, close to the surface, and a salmon was trying to get it. Scrope happened to have some large patterns of the Coachman ; one of these he *looped* on and took the fish. Although it is not expressly recorded, I should say that the construction alone of that fly would make it float for the first few casts ; and this is, therefore, unintentional dry-fly fishing for salmon, which was regarded as unlikely to succeed again.

All kinds of odd angling-phrases are written down for the delight of later generations : the *drowning* of line, *being cut*, a pool that *fishes off land*, *rowangatherers* instead of trout and many others. I cannot end this short appreciation without quoting his summary of salmon-fishing as an answer to one who talks about the need for an angler to have patience : 'This is not moody work ; it keeps a man alive and stirring. Patience indeed ! ' And when you have read the book and have seen, as certainly you will see, Scrope and his Tweedside friends at their fishing, you will be the first to agree.

Two years after Scrope had given the angling world an immortal work, there appeared another almost as good in many respects, but destined not to achieve equal fame. It is *The Practice of Fishing, particularly as regards Ireland* by The O'Gorman. Whether the author had read Scrope's book I cannot say ; but even so it contains a wealth of original matter great enough to raise it to high rank in angling literature. Also it has this merit ; there is a gratifying lack of the facetiousness that passed for humour in those early Victorian days and a refreshingly unconventional treatment of the subject that is typically Irish. But perhaps the humour as well as the *clichés* of one generation are invariably incomprehensible and even distasteful to the succeeding one ! There are anecdotes that illustrate the proper manner of fishing and many portraying the state of Ireland in the 'thirties and 'forties. The directions for tying flies and for making and mending tackle are clear and useful. O'Gorman also records the early methods of fishing the Shannon, which are twofold.

In the less swift part of the river angling is carried on by means of 'dragging.' The cot is launched and poled with steel-shod poles up to the head of the current, then three rods are put out and line is released until the flies are eighteen to twenty yards below the cot, which is then paddled backwards and forwards across the stream. If a fish is hooked, the cot is taken into the shore and the fisherman landed to finish his fight on dry land, for even O'Gorman thinks it perilous to gaff a large salmon and lift it into a cot. In fishing the rapids, such as the Donass or Castle-Connell beats, two cotmen pole the cot out and hold it up against the current, while the angler casts large flies into the parts where the fish are lying. He warns you against attempting, when the wind is at your back, to throw these big flies ; and says, in working the fly round, the rod-point should always be kept low.

His advice to a fisherman who raises but cannot hook a salmon is, 'do not dog him ; three or four casts will determine whether he will take or not.' 'Let him alone, till, in the common phrase, the *sun goes back of him.*'

He is the first to mention the 'priest' by name, advises the rod to be held low in striking, almost horizontal with the water, and gives the tip of slacking off the line to turn a fish that is about to go beyond the angler's control.

Once again we read 'that when natural trout-flies begin to appear on the rivers, your salmon-flies should be as nearly of their colour in the body as possible.' And 'if you have spirit, fish now and then with a dropper not so gaudy as your tail-fly.' He lived in the days when Shannon and Erne and Moy flies were at their brightest ; the technique of dressing the first-named of these he describes and I believe he is the earliest man to do so in print. But broad-minded man as he shows himself to be, he will have nothing to do with the newly-invented hook from Scotland, that is, one with an eye. There is, however, nothing to show whether this eye was turned in the shank or was a loop of metal whipped on. The discussion of his fly-tying is left over until pages 330 and 331.

The Book of the Salmon (1850), by Edward Fitzgibbon, who writes under the pen-name of *Ephemera*, is one of the best-known books on salmon-fishing of the nineteenth century. It contains a large number of fly-patterns, some good coloured plates and many interesting comments of the fly-tying technique on the rivers he had visited. The list of patterns is, from the fishing standpoint, absurdly long, as indeed the lists of flies recommended became in subsequent books ; but here and there Fitzgibbon has recorded, in describing the process of tying, hints that have made it possible to reconstruct the dressings of his and, even earlier, days. I am leaving this aspect of his book for full discussion, until the Salmon-fly chapter is reached (page 324 *et seq.*), and here mentioning only his attitude to the practice of angling.

In the matter of reel-lines he pins his faith to the ‘ platted ’ line of silk and hair, the silk predominating, and except for fine fishing prefers the level to the tapered line, because it will not carry into an opposing wind. Yet the heavy line he dislikes on the ground of its tendency to soak up water ; a reminder that the oil-dressed line of Hawksley and Kelson had not yet arrived. The casting-line, however, should be tapered from treble to double gut and thence to stout single. Phillips' Dublin Limerick hooks are given pride of place.

In discussing the question of throwing the fly, he mentions the ‘ Spey or Welsh throw ’ ; and insists that the fly should be the first to touch the water. It is amusing to see that the throw at right angles across the stream is discouraged because ‘ the salmon-fly would either roll over as it went with the current, or it would float down irregularly on its side. At any rate, its feathers and fibres would be sometimes all of a heap, and sometimes spreading and sprawling in the water, terrifying rather than attracting fish.’ This view was adopted by the salmon-fishers of that and the succeeding generations, so that progress along the road Mr Wood has discovered was unduly delayed. Accordingly the fly was always thrown downstream and across. This was a pity, because in other departments Fitzgibbon laid down some very sound rules about the most favourable time to tighten on a fish. ‘ I am of opinion, that in the majority of rises a salmon half hooks itself ’ ; and further the need of a sharp point to the hook and adequate current to offer resistance to the line are emphasized. Side-strain is preferred to lifting the rod-point over the shoulder as a means of turning a running fish. He counsels starting to fish a pool from the tail upward, in which I think he is wrong ; but his idea of fishing the near parts of the pool, before attempting to cover the distant zone, is good modern practice (see p. 205).

He writes of the difficulty of spotting the lies of salmon in a strange river ; but ‘ in the absence of a guide, take it as a general rule that salmon are seldom seen resting on a smooth, gravelly, or muddy bottom.’ Another likely place is the angle of water created by two stones (cf. p. 214) ; and, when a salmon has been taken in a favourite lodge, there will soon be a new tenant.

The rest of the book is devoted to patterns of flies, the ways of tying them and the natural history of the salmon. Fitzgibbon's book was very useful in his day and is a distinct advance over its predecessors on the score of the preciseness with which the actual practice of angling is put down on paper, a difficult thing at best. It remained supreme until Fitzgibbon's friend, Francis Francis, wrote *A Book on Angling* in 1867. In the meantime there are several other works of which a brief account will be given.

Jones' Guide to Norway (1848), written by Frederick Tolfrey, who in other books records contemporary fishing in France and in Canada, contains little of interest beyond eight magnificently coloured plates of salmon-flies. It is astounding to see how little the *finesse* of fly-dressing has changed since those days ; compound tag, compound tail, complicated body and all the flamboyancy that brilliantly tinted and exotic plumage could create in a wing are there present. Even Kelson could have added nothing but a few shillings in the price paid for rare feathers !

In 1850, Thomas Ettingsall ('Geoffrey Greydrake'), the Dublin tackle-maker, published *The Green Bank List of Irish Flies*, no copy of which is in the British Museum, in the Bodleian, or in the Dublin Library. I only record it as a possible source of valuable information to those fortunate enough to possess one. On the other hand, this book may be nothing but a dealer's catalogue.

The Erne, Its Legends and Fly-Fishing, by Henry Newland, a parson, came out in the following year. Its chief value lies in its hints on fly-tying and in the coloured plate of flies that forms the frontispiece. One of these flies has been reproduced in plate 60 of this volume. There is a mention of 'Chinese Twist,' a substitute for gut ; this was occasionally used for coarse-fishing and sea-fishing as late as 1870 or 1880 (see p. 65). And the term 'washed out' is used of flies that have been fished with, which is, I believe, an effect due to the acid of the peat-water of the Erne (see p. 335). The fly-dressing part of the book is treated on page 332.

Francis Francis is by far the most distinguished angling editor *The Field* has ever had ; and he may truly be said to have had a knowledge of all kinds of fishing and to have been an all-round angler in the real sense of the word. He was not a trout fisherman of the same calibre as his contemporary and fellow-member on the Itchen, George Selwyn Maryatt, nor was he the most accomplished salmon-fisherman of his day. He is best described as a sound angler of catholic taste, who held the balance fairly between fishing for salmon and trout and coarse fishing.

The first two hundred and ninety-six pages (in the third edition) are devoted to coarse fish, trout and grayling ; after that comes salmon ; and extremely interesting it is. Here is a remark every angler should ever keep in mind, when he is playing a salmon : 'a fisherman should never spare his legs at the expense of his line.' The rod, recommended by Francis, was eighteen, nineteen or twenty feet in length, made of greenheart and ferruled, not spliced. The line is one of the eight-plait silk-lines, tapered and 'carefully and well-dressed,' so that it 'runs through the rings so much more smoothly.' He does not state what form the dressing takes, but, as he goes on to say this line does not soak up water so well as the others, I think the silk must have been permanently treated, but not oil-dressed under an air-pump. The casting-line is about four yards long ; as many as three flies are sometimes used at the same time. 'In some waters more than one fly is dangerous, in others it answers well enough. In lake-fishing, for example, two or even three flies may often be used with advantage ; and on the Tay and such broad heavy waters also, three flies are used habitually.' On page 310 is mentioned, for the first time I believe, *shooting the line*. Francis makes also an attempt to describe the Welsh or Spey throw—an incredibly difficult thing to put down accurately on paper. The procedure he favours is casting down-stream and drawing the fly up, although he advises a cast upstream to an obstinate fish, which has occasional success. As for working the fly, the angler can do whichever he wishes, as far as Francis is concerned.

On 'striking' his views are worth studying, for he was renowned at Winchester for hooking more trout than other men and losing more through hasty striking, especially when he had just returned from salmon-fishing. 'Ten times more fish are lost from striking too quickly than by striking too slowly.' He counsels not striking until something in the nature of a 'pluck' is felt. In my own experience, the taking of a fly by a salmon is often far more gentle than that; sometimes the fly seems to have been picked up in a manner more dainty than that of a chalkstream trout, when it is unhurried and sure of its prey.

Then follow a large number of fly-dressings, very poor instructions for tying them (see p. 333 of this volume), recipes for wax, etc. and a valuable chapter on the comparative merits of the hooks then extant. One quotation concerning the choice of flies must find a place here. 'There are many persons who hold that half a dozen flies are enough to kill salmon on any river in the kingdom, and will despise the notion of such an extended list of flies. To such irreverend scoffers and heretical unbelievers I have nothing to say. Let them indulge in their *répertoire* of a bit of old Turkey carpet and a live barn-door rooster.' I am afraid the company of unbelievers is still very strong!

In short, Francis is by this book very sure of his niche in the hall of angling-fame, if only that by his all-round excellence (fly-dressing excepted) he enables us to frame a just estimate of the progress of fishing at the time he wrote.

CHAPTER SEVEN

LITERATURE (*continued*)

THE *Modern Practical Angler* (1870), by Cholmondley-Pennell, contains a very meagre account of salmon-fishing. Its chief interest is in a description of an early attempt to get an ideal hook-shape. A plate of the hooks then in vogue is given and their respective angles of impact are drawn in dotted lines. These are the round-bend, Kirby, Limerick, sneck, Pennell (then a square-bend hook made by Hutchinson, of Kendal) and the Sproat. His criticism of the out-pointing hook, such as the sneck and the Kirby, is that far too much strain is put on the point and more power is needed to obtain proper penetration. In a salmon-hook this is undoubtedly true ; but although he is also right in saying the otherwise admirable shape of the Sproat is too short on both sides the barb, his own attempt at hook-design, either in the Hutchinson or in the Pennell-Limerick, is far from successful. Except in lip-hooks for pike-fishing, he does not refer to the eyed pattern. The illustration of the eye formed in the wire of the pike-hook shows two neatly formed types ; but it seems the eyed hook for salmon had fallen into disfavour since O'Gorman's day.

Pennell's pages on the practice of fishing are of little use to-day and so are his ideas on salmon-fly tying. His three patterns are illustrated in the coloured frontispiece. In these the wings consist of two jungle cock neck-feathers and a topping and the bodies are of silver tinsel, gold tinsel and dubbing respectively. The only stroke of originality is to wind a very large cock's hackle in front of the wing and another at the head.

It was but fitting that A. E. Knox should have borrowed some of the charm of that beautiful river to decorate his *Autumns on the Spey*, a book of letters written, as he tells us in the preface, to friends in the South. The chief value is the list of old Spey dressings which, in 1872, when the book was published, were in the ascendant and still unchallenged by the modern upstarts, such as Delfur Fancy. But of these in another place (p. 334).

The two episodes, *A friend in Need* and *A Disappointment*, are surely two of the best short stories of angling literature. Besides this there are many interesting points concerning the fishing-gear of the day. Also he relates how he tied up the top of his trouser-waders with whipcord and threw himself into the river, in order to see whether or not his feet would float at the expense of his head. His conclusion that, unless the lungs were emptied through struggling, it was quite easy to swim in closed waders is worth careful consideration. My own experiences make me agree ; but I should prefer to give no advice, because so much depends on the swimming-skill of the angler and ability to keep his head (see pp. 107 and 210).

Although the larger part of the book is not directly concerned with angling, do not on that account leave it unread. You will not need to be abnormally catholic in taste to appreciate his notes on spates and on roe-deer, eagles, ravens and other *feræ naturæ* of Speyside.

More has been written concerning salmon on Tweedside than about those in any other river in the country. To the names of Stoddart, Scrope, Locke, Young must be added that of David Webster, whose *Angler and the Loop Rod* (1885) is one of the best-known books of the latter half of the last century and one that contains a great deal of information and of the lore of salmon-fishing. Webster had the happy knack of expressing himself lucidly and in terms that by their forcefulness make a strong impress on the mind. He is an ideal man to quote, because so many of his sayings are pithy and direct. He is a fisherman writing for fishermen 'with the flies round his hat and the air of' Tweed or Clyde 'still fragrant about him,' to adapt what Russel wrote of Thomas Doubleday, when the latter was called to Newcastle during the fierce struggles of the Reform days to address the Northern Union.

Although Webster advocated working the fly in salmon-fishing, he says the trout-angler 'should never "work" his flies, but make a skilful cast, dexterously keep his line well in hand as the flies sail down, and leave the stream to do the "working" business, and impart to them their "natural motion".' This is true watermanship and an understanding of the way of the stream with a fly far in advance of that of his day. The power of the current to look after a fly was unfortunately forgotten, until it was rediscovered on Deeside but a few years ago. Webster comments on the way a salmon chooses to make its lodge in places we should never have picked out for them and to 'pass over others that we should consider peculiarly adapted for their purpose.' The most valuable of all his *dicta* is 'If you see a salmon rise and take the fly, let him turn before you strike.' He does not counsel waiting until something is felt, but tightening as soon as the fish is seen to turn under the water. For some years past, when fishing the sunk fly (especially in a stickle), I have tightened at the 'flash' and have never been wrong in my diagnosis. Webster's book is a book to possess and read slowly ; but, for the delight of those who have no copy and cannot get one, I give here one of the most picturesque and superbly accurate descriptions of a salmon's tactics the first time it is brought in. 'Just as he is nearing the channel, or even when he is on it, he has a trick sometimes of remembering that he has forgotten something, and of suddenly disappearing to fetch it.'

John Traherne was one of the great salmon-fishers who flourished towards the end of the last century. In 1889 he wrote a short book of essays, called *The Habits of the Salmon*, which presented in a very capable manner the current views on many of the problems that are still with us. The subjects discussed are such as the descent of kelts, spawning-frequency of salmon, the feeding of salmon in the river and the effect on the feeding of salmon of river-temperature.

In the same year the Salmon and Trout volume of *The Badminton Library* was published and Traherne supplied the part dealing with fly-fishing for salmon and Cholmondely-Pennell wrote the chapter concerning the practice of spinning for it. Traherne was an angler with a wide experience of salmon-fishing and what he says commands respect, especially his very able treatment (on page 197) of that treacherous subject, the choice of a fly. The salmon-flies, except the last six patterns illustrated, are those of Kelson, whose notes on them are appended; the others are chosen by Pennell.

Here are a few of the more important views held by Traherne on the practice of fishing for salmon. The working of the rod has little, if any, effect on the fly, when a long line is out. It is unnecessary as a general principle to strike a fish that has taken the fly, because a salmon will usually hook itself. The rod should be lowered at the moment the gaff has penetrated the body of the salmon; otherwise there is a risk of the fly being snatched from its hold and the tip of the rod strained or even broken. My own method is to release the slack line I have had in my hand for the half-minute or so before actually gaffing a fish. And there is much else besides that I judge to have been somewhat advanced in the eyes of his own generation.

In 1892 and 1895 respectively appeared two important books on fly-tying: Hale's *How to tie Salmon Flies* and Kelson's *The Salmon Fly*, the influence of which is discussed in another place (p. 337). Beyond his work on flies, Kelson laboured at the improvement in design of all manner of fishing-gear, especially lines and rods. He is an extremely difficult man to judge fairly, for in his two books, that already mentioned and *Tips* (1902), he does not appear to advantage; and had it not been for the kindness of my friend, Mr G. H. Nall, who lent me articles cut from contemporary papers and also notes made by Kelson himself and by Gribble on Kelson, I should have been forced to pass a judgment on him I now realize would have been unjust.

In regard to the waterproof line of the day, I am told there was only one worthy of note, that dressed by Wells Ridley, who was indebted to Kelson for the ideas out of which the method and waterproofing solution were evolved. But this line was not on the market. It was not until Kelson made alliance with Messrs George Carswell that the first-class waterproof salmon-line became a commercial success. To the excellent quality of this line I can bear witness, on the grounds of the correct measure of suppleness and wearing-power of its dressing. Before that time the usual line was a loose plait, dressed with varnish, and earlier still it consisted of a mixture of silk and hair. Kelson and Ridley set to work and did for salmon-lines what Hawksley did for trout-lines. The old type of line was too light to carry against a wind and to *shoot* through the rings, was supple to the point of having no character, soaked up water very easily, so that it was unsuitable for *mending the cast*, and had many other evil qualities that are carefully summed up in his chapter on lines. The nett result of the investigations of these two men was a line, in which the silk was far more tightly plaited than had ever been accomplished before and which was therefore heavier and more solid.

Kelson also did much for salmon-rods. He found the rod for this branch of fly-fishing a soppy ill-balanced weaver's beam and by careful experiment, in conjunction with several well-known rod-makers, produced something that is comparable to the rod of to-day. A rod is still sold under his name and made to his design, which must have been a great advance on the Castle-Connell and Spey rods of his early days.

In the course of his long life, which extended from about 1830 to 1920, Kelson collected a vast amount of fishing-lore and had a very wide experience of salmon. He made the earliest attempt to explain the theory of casting, illustrated the methods of casting with diagrams and invented the present-day collar of plaited gut, which is whipped to the end of the reel-line, to assist in the neat attachment of the gut-cast.

His theory of fly-selection is undoubtedly the weakest part of his work, because he allowed himself to advance the most ridiculous ideas and then to build on them. He is right in saying that a salmon can be woken up or excited to take, if, first of all, an exceptionally-brilliant fly is shown and then a pattern of the regular size is put over it. But where he seems to us to have gone so utterly wrong is in such opinions as this. 'No ; the fish do not follow the fly as they did " when the novice hooked them at the first bungling throw "—not one in fifty. Those halcyon days—the true time when it was " never too late to mend " have gone. .. . . Long since that innocent era Salmon have been better taught to use their eyes.' And he persists in treating salmon as though they were to be educated as trout are erroneously said to be. The theory that, upon the introduction of certain feathers to the fly-dresser's cabinet, salmon can be taught in several years' time to take flies dressed with them is too absurd to merit serious discussion. Although there is a great and undeciphered secret in the way the character of a pool affects the patterns of flies used in it, it is generally agreed Kelson went much too far along the path, the first steps of which were blazed by *Ephemera* and Francis. Mr Nall tells me that in practice, Kelson used very few patterns and regarded the assembling of the great mass of patterns he described in his book as serving a historical rather than a practical end. I wish he had made that quite clear in his text.

It is, indeed, a great pity that the record of what was a splendid achievement, upon which his fame will always rest secure, was expressed in such obscure and verbose language. There are passages that make Franck's prose seem a model of precision and simple directness !

It is with some relief that one turns to Sir Herbert Maxwell's book, *Salmon and Seatrout* (1898), at least, to the pages dealing with the theories concerning the meaning of a salmon-fly. The text is well written and flows easily, so that the reader is constrained to follow him with pleasure through the chapters on hooks and their shapes, on the meaning and history of a salmon-fly, on fly-dressing and on the art of fishing. The author had no illusions about the special efficacy on its own river of a local salmon-fly ; nor had he any belief in the power of one pattern to succeed where another had failed. He quotes a passage from Francis, written in 1886, in which it is recorded that lately salmon had changed their tastes in flies, preferring the new gaudy patterns to the sober flies of earlier times. And there is a kind suggestion that Francis might have been writing with his tongue in his cheek, or—but we will leave it at that ! He records a change in patterns on Tyneside similar to that described by Major Hills (see p. 334 of this volume). 'At that time—it was in 1867—nothing was permitted but sober greys, dun turkeys, and brown mallards. The gaudy, flaunting lures from the neighbouring Tweedside were declared to be useless.' Then fashion had its way ; and up and down the river the gaudy fly became supreme—Wilkinson, Jock Scott, Thunder and Lightning, Dandy and a host of others. There is great deal in his idea that the patterns current in Great Britain were made from commonplace materials, because most of the rivers were far from towns ; while the Irish, who delighted in bright colours and had access to the sea and foreign parts at Dublin, Drogheda, Cork and other such harbours to which great rivers flowed, tied their flies in accordance with their tastes, so much so that ‘ on Scottish streams an “ Irish pattern ” remained for many years a synonym for a gaudy fly.’ Thus the argument proceeds to the conclusion that ‘ flies are tied to please men, not fish.’ And undoubtedly catch them too ! Yet ‘ someday, perhaps, the opinion will prevail that the delicate and brilliant hues recommended for the composition of the salmon-fly are, not objectionable, indeed, nor inimical to sport, but superfluous.’

The instruction on the methods of dealing with a hooked fish is good ; and so are the attempts to explain what is really happening below the water at such times as a salmon is said to be *sulking*. For the first time a picture is given of the right way to put pressure on a salmon at the end of a fight, by the operation termed, in a most misleading way, *showing or giving the butt*, or sometimes *butting*. And although the fly-dressing instructions are of no value beside the technique contained in the works of Hale and Kelson, there are interesting points in the pages devoted to the dressings.

Good as the book may in some respects have been when it was first published, it has long ceased to be regarded as a modern textbook.

The Haddon Hall Library contains a book on *Fly Fishing* (1899) by Sir Edward, now Viscount, Grey. It is one of the most delightful of books. Although the pages devoted to the practice of salmon-fishing are no more than forty, it is a book to read, if only for its attitude to the sport that to all of us should be what he finds it, a country contentment, a memory in those black days when there is no sound of a river as it runs. An enlarged edition, containing Lord Grey’s experiences on the Cassley, in the Kyle of Sutherland, was published in 1930.

Richard Franck—nearly two hundred years—William Scrope—almost a century of waiting—and then Mr Chaytor, whose book, *Letters to a Salmon Fisher’s Sons* (1919), has placed him in the very select company of writers on salmon-fishing who are of the first rank. He expresses the best practice of his time ; he clarifies in simple and effective language the thoughts of many of his contemporaries ; of traditional ideas he discards much without destroying what had been proved true and of value ; and he adds to the sum of our knowledge of salmon-fishing much that was original and was the result of his own fishing experiments on the Tyne.

I shall not attempt to give more than the briefest summary of the book, because a full and adequate critique would call for a volume of a size little smaller than his. ‘ From a book you cannot learn the whole art of salmon-fishing, but you can learn to avoid many disastrous mistakes, and you can learn endless “ wrinkles ” which make your fishing more finished and much more effectual than before.’ His book is essentially one of this kind. Tackle, the practice of fishing and of playing salmon, hooks, gut, spinning, prawning, worm-fishing, the literature of the subject, the life-history of the fish and many other points are brought up by him for review ; and all these subjects, touched by his able pen, are freed of their dross and are the purer for having been passed through the furnace of knowledge and common sense.

From the Tyne we travel to the Herefordshire Wye, about the fishing in which Mr J. A. Hutton has much to say, especially in regard to spinning. The book is full of far too many details for me to make even brief analysis of its contents ; and those who are interested in the labour of investigating the conditions of river and air that affect the free taking of a lure by salmon should read for themselves *Rod Fishing for Salmon on the Wye* (1920). On the whole I think the chapter on improving a fishery is the most valuable in the book, as it is a record of what was attempted and what was achieved, by no means the same thing in dealing with a powerful river !

Besides this book, Mr Hutton has written a monograph on *The Life-History of the Salmon* (1924), *Reminiscences of Halsten Muri* (1907), which is concerned with angling days in Norway, and several brochures on special branches of the art. Perhaps it is by his work on the scales of Wye fish that Mr Hutton is best known and most likely to be remembered ; although the recovery of the Wye and its present proud position as the best salmon-river in England is largely due to his efforts and to those who worked with him. What has been done on the Wye can undoubtedly be done on the Thames, effluents and locks permitting !

Mr Henry Lamond's *Some Piscatorial Problems Idly Considered* (1921) is a series of short essays on points in angling that are usually treated in cursory manner by books dealing with the subject as a whole. In it there is the earliest serious attempt to discuss the rise-form in trout-fishing, a reference I unwittingly omitted in the first edition of the *Trout-Fishing* volume of this library, but was able to make good in the next. But salmon-fishers will find something of vital importance in chapter three and chapter eight, 'An Entomological Enquiry.' Chapter ten deals very precisely and succinctly with the actual operation of spawning from careful observation. The last chapter voices the feelings of a large number of keen anglers who are unable, through monopoly, to get access to the rivers of this country. The book, as indeed are his other books, *The Seatrout* (1916) being prominent among them, is noteworthy for two qualities, the closeness of his reasoning and the interesting and scholarly style in which it is written.

Major Kenneth Dawson's *Salmon and Trout in Moorland Streams* (1928) gives a good account of fishing in rivers not blessed with the abundant stock of salmon to which those who angle in Wye, Tay and Dee are accustomed. Fish of the streams he describes are far harder to discover and, when discovered, to catch. It may be that a man trained on these hard-fished and difficult waters is often a better fisherman than one who knows a little of a blank day, but has not experienced the meaning of a blank week or a blank month. The book is interesting, but stereotyped in its setting-out of the principles upon which the practice of salmon-fishing rests or is supposed to rest.

I think the best part of the one hundred and fifty pages devoted to salmon is the chapter on fishing associations and on ancient Tavy salmon records. It was high time someone called attention to the need to preserve the clubs and associations and to defend them against the inroads lately made on them by private ownership. Only two years ago, the ancient

Glyndwr association, a record of which is to be found in Hansard (1834), was broken up through the purchase of a small but important part of it by a man who cannot fish and will not allow that privilege to be retained by the association. If this book opens the eyes of members of such clubs to dangers of this kind, it will have served a very useful purpose.

In 1929, there was published Mr Reynolds's *Fly and Minnow*, the second part of which deals with salmon problems that arise in regard to rods and the covering of the water effectively, both in fly-fishing and spinning. The diagrams are more elaborately conceived and carried out than in any previous book; and a great deal of space has been devoted to the overcoming of what is termed *lash*, that is to say, the rapid dragging of the fly across the water by the line, which, in turn, is pressed downstream by the weight of the current. His remedy is to pull through some yards of line, according to the needs of the situation, so that the fly shall always travel with its head to stream. Modern opinion condemns this way of presenting a fly, as one likely to cause *pricking* and *feather-drag*, so called. Mr Wood had much the same problem to face and solved it by the use of a greased line (which Mr Reynolds relegates to times of low water in summer!) that could easily be *lifted over*, so that *lash* was not allowed to develop.

The book also contains the first account of fishing in the Pyrenean Gave d'Oloron.

I closed the volume with a fuller realization of the fruits already yielded by greased-line fishing. The sunk-fly method has taught us all it could; and we have invented a great deal it didn't and couldn't! And I know that the next great book on salmon-fishing must be started on a perfectly-clean sheet, free from prejudice, tradition and guesswork and built up from the salmon's point of view.

Another Wye book was published in the same year, Mr H. A. Gilbert's *The Tale of a Wye Fisherman*, a work that is going to stand as a record of how a river can sink and then be raised by skilful treatment, which demanded some faith and self-sacrifice on the part of those interested. It contains the results of very able research and also a most valuable account of the passing of the free fishermen on that river and the working of the modern system of netting. Chapter six on 'Methods' is a particularly able statement of those suited to the solution of the problems the Wye sets her fishermen.

Fishing for Salmon (1929), by Mr Cyril Marson, is written with the Welsh Dee, a fairy river, if ever there was one, and the Herefordshire Wye as a background. The chapters devoted to the practice of fly-fishing contain little that is not clearly and incisively expounded in Mr Chaytor's book. No mention is made of the greased-line method, which I believe was not carried to this Dee until 1929; but it is some years since it was introduced to the Wye. I was a little surprised to see recommended the quicker movement of the fly, where it entered fast water.

§ *Writers on the life-history of the salmon and some American writers.*

Many of the angling-writers gave a chapter on the contemporary knowledge of the lives of salmon and seatrout; but the first specialist in this branch of angling was Alexander Russel, whose book, *The Salmon*, appeared in 1864. *British and Irish Salmonidæ*, by Francis Day, followed in

1887; and, two years later, *The Habits of the Salmon* by Traherne, which has already been discussed (p. 81). And, in 1885, J. W. Willis Bund produced an interesting volume on *Salmon Problems*.

As soon as the implications of Mr Johnston's discovery in the field of scale-reading were properly understood, several books were written on the life of the salmon, which were based on the consequent additions to our knowledge. In 1907, Mr H. W. Calderwood published *The Life of the Salmon* and, twenty-three years later, *Salmon and Seatrout*. The second book was the result of many years at the Office of the Scottish Fishery Board and an able summary of the labours of Messrs Menzies and Nall and others working in conjunction with the Board. In addition, Mr Calderwood links up the work of investigators on the other side of the Atlantic, notably that of Mr Gray Griswold. The late P. D. Malloch left behind him an excellent volume on *The Life-History and Habits of the Salmon* (1910); the text is extremely interesting, because it records the experience of a life spent with salmon in the service of the Tay Fishery Company. The photographs are exceptionally good and, by the great courtesy of those who carry on the name in Perth, I have been allowed to include some of them in this book.

The study of scales spread south during the war and was taken up by Mr J. A. Hutton on the Herefordshire Wye. This led to several monographs, *The Life-History of the Wye Salmon* (1918) and *The Life-History of the Salmon* (1924) being prominent among them.

In 1925, Mr W. J. M. Menzies, now chief-inspector of the Scottish Fishery Board, wrote *The Salmon: Its Life-Story*, which is the best modern book on the subject. The company of investigators in these islands into the *arcana* of the salmon's life would not be complete were the name of Mr G. H. Nall to be omitted, although he is chiefly working on the very difficult problems connected with the life of the seatrout. And, in Norway, the whole subject has for some years past been in the extremely capable hands of Professor Knut Dahl, one or two of whose works have been translated in English and published by the Salmon and Trout Association.

Mr G. M. L. La Branche followed up his delightful volume on *The Dry Fly and Fast Water* with *Salmon and the Dry Fly* (1924). This is the earliest attempt to present a reasoned case for the employment of the dry fly in a branch of fishing that had previously only recognized one mode of fly-fishing, viz. the sunk fly cast downstream. I do not know quite how to apportion the credit for this revolution in methods; Mr La Branche as the first to write of it, or Colonel Monell, who was the first on the western side of the Atlantic to take a salmon on the dry fly (see p. 237).

Within the one hundred and thirty-four pages of the book there is compressed a history of the growth of the theory and practice of the mode. It is very pleasantly written, but it cannot be considered the classic exposition of a form of fishing that his former book undoubtedly is. It is clear he is, first of all, a trout-fisherman and has taken later to angling for salmon. From time to time, there flash out little sparks of realism, which show how carefully he is guarding against the danger of being led away from the observed facts. He distrusts the modern habit of building on speculation. The bulk of his experience has been won in struggling with the problems trout have set him. But the knowledge he has thus acquired has been so deep-rooted and of so fundamental a nature, that it was not necessary for him to have the same wide experience of salmon-fishing he possesses of fishing for trout. If he had been asked to make a close study of sea-fishing, and had had no specific knowledge of it, I feel sure he would have viewed this mode wholly with the eye of a fisherman and have adapted himself speedily to new conditions. When a man has mastered two languages, I am told, it is comparatively simple for him to add more to his répertoire.

Mr La Branche has written chapter thirty-five in this book, and it is enough to refer to that for an exposition of his views. But all of us who have read and have appreciated these books wish to see them re-published and fitted with explanatory diagrams, especially some to illustrate the special methods of casting described in the salmon-book. Both of these works are bound to live and it is a pity they are not easier to obtain at the present day.

In marked contrast with Mr La Branche's polished style and refinement of thought there is another book, the theme of which is also the use of the dry fly : *Secrets of the Salmon* (1922), by Mr E. R. Hewitt. I often find myself at variance with him on the grounds of fact and of expression ; a lack of preciseness is unfortunately a characteristic of his writing, which frequently obscures his meaning. But, apart from these criticisms, I am bound to say there is no modern book on salmon-fishing that has forced me to think so deeply about the problems presented to-day by this branch of angling. There are many challenging statements, sometimes slightly unsound in themselves, which inspire a searching of the known facts for the truth. The text and the thought is written in American idiom and applies largely to the salmon that inhabit the waters of the eastern seaboard of North America. Their habits and the conditions surrounding them are in some essentials quite different from those we associate with salmon on this side of the Atlantic (see p. 40).

There are so many ideas in the book and so much ground is covered, that it would be very difficult to compress into a small compass an adequate account. I shall content myself, therefore, with one excerpt. ' It is very hard for the novice to tell when the salmon is alarmed. He does not usually run away as does a trout, unless he is very frightened indeed. If you watch carefully, the only thing you can observe is that he settles a little towards the bottom and often changes the motion of his fins and tail. When this happens a salmon will not rise, and there is no use casting over him just then. On the other hand, if he begins to work his front fins faster or raises his head and whole body in the water as the fly passes over him, he is taking notice and will most surely rise to the fly if it is put over him enough times in the proper way.' Compare this with the observation mentioned on page 238.

Mr Hewitt is the first to attempt any classification of the ways salmon show in the pools. This is a hopeful line of investigation that may give invaluable information in the future ; but some research, first of all, will have to be carried out with the aid of the cine-camera to get accurate action-photographs of the salmon, as it leaves and enters the water.

As for the rest of the book, it can only be appreciated by reading it slowly, separating the chaff from the grain and chewing the latter with the utmost deliberation.

The only other American writer of note on fishing for salmon is Mr Gray Griswold, who has produced privately six books mainly dealing with the salmon of the Grand Cascapedia. A list of these will be found in the bibliography at the tail of this chapter. I can speak from knowledge of only three and these have given me an insight into Canadian salmon-fishing I could have acquired in no other way than by going there. In *Fish, Facts and Fancies* (1926) he notes the preference salmon sometimes show for following one tributary of a river rather than another, or one particular river out of two meeting at the mouth, an instance of which he gives in the Aven and the Belon of southern Brittany. The Aven holds salmon—provided the natives do not spot them too soon! The Belon does not. I believe I observed the same thing in the two streams that flow down to Quimper, ten miles from Pont Aven.

The Life-History of the Atlantic and Pacific Salmon of Canada was written in 1930, in collaboration with Mr R. D. Hume, and contains among other things the adaptation of Professor Pettersson's nine-year tide-cycle theory. This is employed to explain why some years are universally bad salmon-years and others good, the connection being worked through the movement of school-fish in obedience to ocean currents (see pp. 40, 41). There are in this volume and in *A Salmon River* (1928) many interesting points of view and much observation well worth thinking over. Above all, the author is clearly a man who appreciates to the full the natural beauty of New Brunswick.

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CHAPTER EIGHT

TACKLE

'Nor doth it by one halfe so well incline,
As doth the plyant rod to save the line.'

JOHN DENNYS OF PUCKLECHURCH.

§ 1. *Salmon fly-rods.*

THE first salmon rod I possessed was eighteen feet long, stout and heavy at that. It was a ' weaver's beam ' of washaba and lancewood, a gigantic rod, but very wonderful ; and my early enthusiasm gave me a strength I have since lost. The next season things were different ; my strength had returned to the normal and casting became so great a labour, that I thought with envy of Atlas and eternity. That rod and a cast of the strongest ' telerana ' I have ever discovered formed a most efficient instrument for removing salmon from the river. They came out standing on their tails : but it was not fishing ! A great many salmon-fishermen begin with tackle absurdly strong or pathetically weak, and work their way by experiment to rods and gut that are light and delicate within the bounds of safety and strength.

The great virtues in a rod are lightness in the hand ; balance and a delicacy that limits the strain transmitted by a powerful rod to the line and the cast, so that the finer gut may not be broken by a sudden snatch at the fly or by the struggles of a hard-fighting fish ; and also hooking-power (see *Trout-Fishing from All Angles*, p. 72). Other qualities are a matter of compromise or are decorative.

Of lancewood, washaba, hickory, whole bamboo, split bamboo and greenheart I prefer the last two, as the most reliable material for a salmon rod ; but each is superior to the other in certain respects. Greenheart rods at their best are not so easy to find as those of good quality in split bamboo ; but the perfect spliced greenheart has an action unsurpassed by any other rod.

Spliced joints, not harsh metal ferrules ; that is one of the secrets, because the vibrations of the rod proceed evenly from butt to tip, without being partly checked by metal ferrules, and because the main argument advanced against greenheart rods, that they snap between brass and wood, without giving any warning, is thus destroyed. The other secret is that the rod shall be fashioned from lengths fended, that is, split from the block, which ensures it being constructed from straight-grained wood. The issue between the split-bamboo rod and the spliced greenheart narrows down to this ; the former is a little lighter, lasts longer, is slightly more powerful and is put together in less time ; while the other is far cheaper, has a better action and stands up far better to the strain of Spey-casting (see p. 144 *et seq.*). But splices, whether they are fastened with whipcord, leather thongs or with adhesive tape (the last, I think, is the best), take less than five minutes to adjust and have a great advantage of solidity over ferrules that, when worn loose, allow the joints to turn. A Tweedside firm of old repute fits all the spliced rods it makes with spring-loops, into which the fine ends of the taper are slipped in readiness for tying down. This ingenious device ensures the joints fitting snugly, even before the insulating tape is applied (see fig. 7) ; and it destroys every argument opposed to spliced-rods.

The suitable length of a salmon fly-rod depends to a large extent upon the size of the river on which it is to be used, upon the type of fishing and upon the angler's casting-ability. Rods, eighteen and seventeen feet long, are becoming scarcer every year, because it has been found that wide rivers can be fished equally well with a powerful modern sixteen-foot rod. There are, however, rare occasions, when a rapid centre current demands the employment of a rod with a greater span than is possessed by the ordinary sixteen-footer. I have heard of a place where only a twenty-foot rod is of any use in holding a sunk fly out over the fish, which lie on the far side of a strong stream. The employment of a greased line gets over this trouble, which is one of its great advantages. The extra distance an eighteen-foot rod will throw a fly is rarely worth the energy expended in handling it.

Fig. 7. A JOINT WITH SPRING-LOOPS.

If I had to choose a salmon fly-rod to serve all my needs, I should get one of fourteen feet, which is long enough to use in high water and to cast nearly as much line as can be controlled and would, if it were used with great care, be light enough in the hand to prevent too much strain being placed on the finer grades of salmon-gut. The longer and more powerful the rod, the greater should be the margin of strength in the gut-cast, or the more delicately should one tighten on and play the fish. If the action of the rod-top is harsh, it is almost impossible to play a fish lightly. The only chance is to keep the rod practically at right angles to the line, vertically or sideways, and play the fish entirely on the top joint. There are, you will find, conditions of weather and river, when the use of light gut offers the only chance of success, so that one takes gladly to a lighter line and a more flexible rod rather than run the risk of breaking the cast.

There are also days when a heavy line is essential, heavy enough to carry against the wind and to sink in flowing water, so that the fly swims at the proper depth ; but, if the rod is not a powerful one, it cannot lift a heavy line without undue strain. For many years fishing for salmon with a well-sunk wet fly was the only method ; and for fishing on the days, following a spate, especially in spring, when the water is still turgid, this way is likely to survive. But the tendency is towards lighter and shorter rods, especially for low-water fishing, because they are more comfortable to use, giving far more pleasure in playing a fish, are able to stand up to the work, help the angler to place no more than a fair strain on fine tackle and are better fitted in every way to the new styles of fishing.

The angler who can afford two salmon fly-rods of different lengths will soon find himself every season using the lighter rod at an earlier stage of the return of 'salmon-water' after a spate. But care ought to be exercised in choosing the rod that will pull home the partly-engaged point of hook, upon which the size of fly demanded by the conditions, has been dressed. The latest low-water flies (see pl. 50) are dressed on hooks with such keen points that penetration is effected by the weight of the current alone and without any special effort on the angler's part, beyond lifting the rod as the fish is felt. As will be seen later, the size of the hook in sunk-fly fishing often regulates the strength of the cast (pp. 125 and 126) and to some extent the power required in the rod, because, as I have just mentioned, a certain amount of force is needed to make a large hook penetrate the flesh of a salmon's mouth. By the greatest good luck alone could a ten-foot trout rod pull in a No. 1 hook, although a rod of this length can comfortably deal with fish up to twenty-five lbs and, provided that seatrout gut is used, will drive into a firm hold a No. 6 or even a No. 5 salmon-fly. It is astonishing how well a good ten-foot trout stands up to the work; the playing of a salmon may take a little longer, but not very much, because the gentle strain given by a trout-rod allows a fish every opportunity of tiring itself out. The most difficult thing is to bring it within gaffing distance (see p. 175). The use of a trout rod for this purpose is old. I quote Francis Francis in this connection. 'Lord Somerville, who was an excellent fisherman, used a one-handed trout rod for salmon. . . . I was astonished to see what a long line he himself could throw with it.'

The suitable types and lengths of rod for greased-line fishing and for dry-fly fishing are discussed by Mr Wood (p. 239) and Mr La Branche (p. 377).

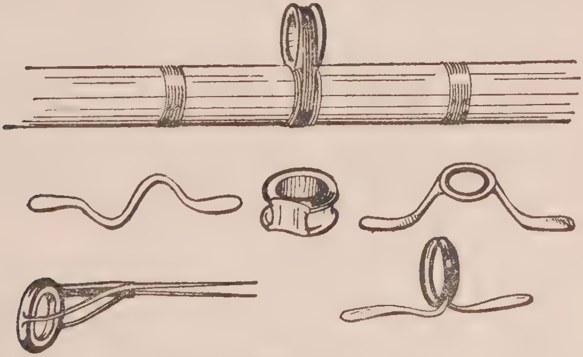
The functions of a rod are threefold: casting, playing the fish and saving the gut. The forward propulsion of the line through the air requires less effort than lifting it out of the water and, as the neatness with which the line is lifted clear is the making of a good cast, it would be more accurate to say that recovery is the first duty of the rod. A flexible rod-point that springs back quickly and without undue vibration will act as a perfect intermediary, a sort of spring-buffer, between the tension on the reel and the pull of the fish. It gives immediately to an increase of strain upon the line, until the resistance of the check of the reel is gradually overcome. Whenever a fish moves a little nearer to the angler, the rod-point returns towards the straight position, so that in theory the tension on the line is never relaxed and the hook cannot disengage. This is the reason why the rod should always be kept up (see p. 165) during the playing of a fish. A rod-point, lowered towards the fish, enables an angler to put far more strain on a fish and is to be employed in the later stages of the fight; but it will then cease to act as a compensator to sudden strains on the gut.

§ 2. *On choosing a rod.*

Here are a few hints on choosing a rod. There should be a feeling of power in the flexions of the rod, especially about the middle; the action should be appreciable right down to the hand ; and the point should recover quickly and settle down without quivering. Unless a rod passes these tests, it is not worth giving it the only real test, viz. how it will lift a line from the water. The weight of a reel affects the balance of a rod ; a rod should, therefore, on no account be tried without a reel. Even a good rod is spoilt by a reel of the wrong weight, so that, if both are to be bought, you will have to hope the tackle dealer will be patient (and I have generally found them so) and allow you to change the reels about, until a suitable combination has been discovered. After that, I strongly recommend a trial on a river, before the final choice is made.

Balance is a very important matter, because a well-balanced rod is much easier and less tiring to cast with than is one without the right balance ; and it helps the angler to tighten on a fish at the right moment far more surely than one with small hooking-power.

The quality of a rod depends upon its power to make long-distance casts, accurately and neatly, and also to throw a short straight line : it is not fair to expect a rod to recover from deep under the water the greatest length of line it will cast. A yard or two should be withdrawn by hand before making the next throw, so that the rest can easily be lifted and the slack released at the right moment during the forward cast (see p. 141). Lastly, I advise a beginner to seek help from an experienced angler in the selection of a rod.



TYPES OF RINGS IN USE TO-DAY. **Fig. 8.**

Saddle ring in position on rod.

Snake ring. Saddle ring. Bridge ring.

Agate-lined top ring. Agate-lined butt ring.

There are other points of less magnitude, some of them merely ornamental. Figure 8 shows four types of rings, snake and bridge, which are usually found on fly-rods, agate, which are expensive and are apt to be broken, unless they are well protected, and those of brown porcelain. These last, known as saddle-pattern rings, are no heavier than metal rings and are made with a slightly concave seating, so that they fit snugly to the rod, to which they are secured with strong tying-silk. The great advantage in having agate and porcelain rings fitted throughout the rod lies in the small resistance they offer to the line, when it is being *shot* (see p. 141). The usual procedure is to fit agate rings at the tip and at the butt and snake or bridge intermediate rings. Of the two last I have no hesitation in recommending the snake pattern, because it is lighter and provides a clearer passage for the line.

All types of rings should occasionally be cleared with the corner of a rag, especially after using a greased line, as the grease adhering to the rings collects enough grit and fine sand to check the line and to scratch its enamel-surface.

The most comfortable handle is made of cork, fairly thick over all and a little stouter at the top. Many kinds of reel-fastenings are made ; but the best I know is the simple socket and travelling ring, because the position of the reel and thereby the balance of the rod can be slightly altered by putting the socket a little lower or a little higher on the handle.

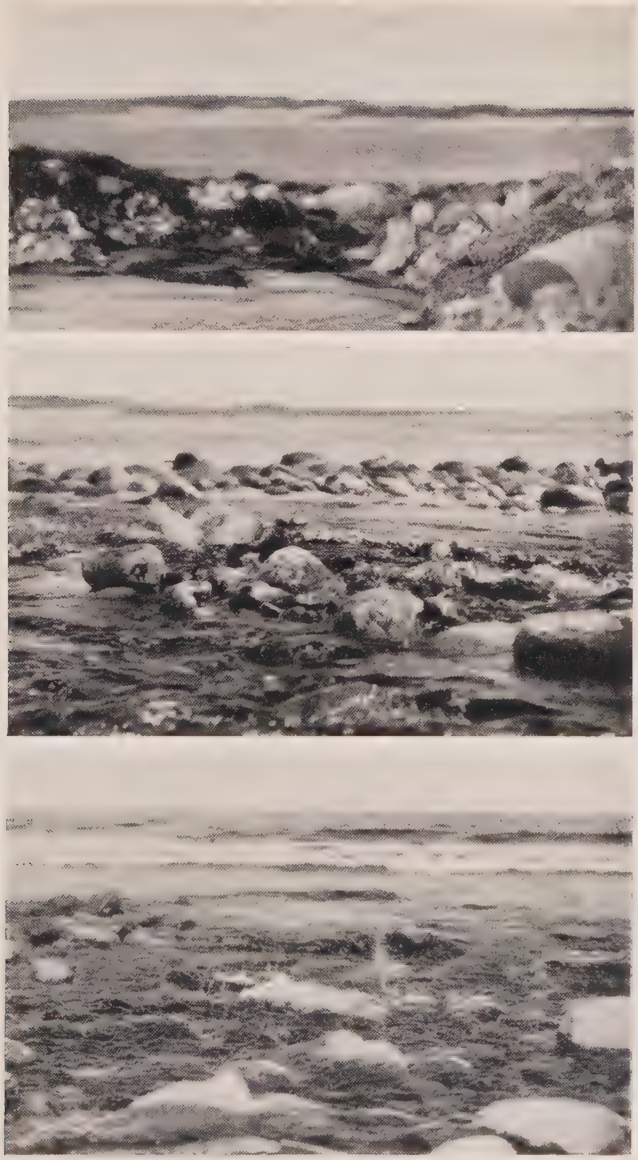
Varnish forms a strong protection to the cement that holds the sections of a rod from any source of damp, but it flashes most brilliantly on sunny days. Whether this flash always scares the fish I do not pretend to know. A friend of mine, who has experimented on chalkstream trout with a mirror, says it does not. Yet there are times when a rod with a matt surface of grey, green or light blue paint will beat a varnished rod. A fisherman went to fish the Carron with three others, all of them, he told me, far better anglers than himself. The stream was running quite clear and the weather was bright throughout the ten days ; but he was the only man to use a matt-finished rod and caught during that time two-fifths of the total number of salmon. Paint on a rod does not look as well as varnish ; but there is little wrong æsthetically with a greenheart if it is, first of all, varnished and, before the coat is quite dry, is painted a dull heron-blue. The ring-whippings should be touched up with dark varnish. Split-bamboo rods do not look well when they are painted, but there is a method of giving a matt finish to varnish by allowing the finest pulverized pumice-stone to settle on it, when the varnish is half dry.

§ 3. *The care of a rod.*

A good rod will stand a great deal of hard work and will last a long time, if it is not asked to attempt tasks beyond its powers and if a little care is taken to keep it in good repair. Spey-casting, for example, places an unfair strain on the lowest joint of a split-bamboo rod. The first sign that all is not well is the opening of a seam, where two sections of bamboo are cemented together.

If the ferrules themselves are not gripped, when the joints are being taken apart, serious damage will be done to the rod and the hold of the ferrules on the bamboo will be slackened. Violent untwisting of refractory ferrules is often the cause of looseness in lockfast joints, so that, after a short period of casting, the male ferrule will be found to have turned, carrying the lock from its proper position. The rings will, accordingly, be out of alignment, which will hinder the easy running or *shooting* of the line. The use of strips of india-rubber tubing gives a firm grip on ferrules ; or the Spanish windlass may, as suggested in Mr Shaw's book, be used to take joints apart.

Male-ferrules ought not to be greased with vaseline ; uncooked mutton-fat is the best lubricant I know, but, if these ferrules are rubbed up and down the hair at the back of the neck, they will slip easily into the sockets.



Plates 21, 22 & 23

BARVAS: ISLAND OF LEWIS

TOP: THE TOP OF THE RUN. THE TWO DARK STREAKS ACROSS THE WATER WERE CAUSED BY AN ASCENDING SALMON.

CENTRE: THE SPLASH OF A FISH ENTERING THE RIVER FROM THE SEA. THE WATER IS ABOUT SIX INCHES IN DEPTH.

BOTTOM: A SALMON HAS HIT ITS NOSE AGAINST A ROCK AND HAS TURNED BACK. IT CAN CLEARLY BE SEEN LODGED AGAINST TWO ROCKS, ITS HEAD TO THE LEFT AND ITS MOUTH OPEN.

Stoppers to rod-ends are a never-ending source of worry, until one can truthfully say they are lost ! One way of keeping them is to sew them into the end of the rod-bag partitions, so that they naturally enter the joint-sockets when the rod is put away ; or to sew down to the flap loops of tape, into which they fit tightly. If the end of the bamboo is enclosed by the brass of the ferrule, I can see no reason for the existence of stoppers, except to keep the socket clear of grit and to discourage spiders from indulging their curious tastes in home-making !

The rod after it has been used should be put back into its case and hung up by the loop at the lower end of the case. I am afraid I lose sight of the empty rod-bags from the day the rods come out of their winter quarters ; at the end of the season they appear mysteriously from underneath a heap of odds and ends. Of course, a rod-bag with a spare top in it must be hung up. If you are going a journey by train or car to a distant river, by all means take the rod in its bag ; but be very careful not to put it inside one that is damp. Nothing spoils a split-bamboo rod so effectively as dampness on the one hand and central heating on the other. A better plan is to place the rod in a tubular container, specially designed for the purpose and made of aluminium alloy ; but, if several rods are to be sent by rail or taken to the river, get a strong rod-box, six foot long and made of Willesden canvas, and see it is fitted with two narrow straps inside to keep the rods firmly in place.

Rods may be hung quite safely across a series of nails protected with leather or flannel, or of wooden pegs. A long narrow shelf is the best of all. If the rod is placed leaning against a wall, the heavier joints may take no harm, but the top-joints get warped.

§ 4. *Reels for fly-fishing.*

Any well-made salmon fly-reel of the right size will serve, provided the frame and spool are constructed of gun-metal, or of aluminium alloy, not of aluminium, as it is too soft and liable to be bruised by accidental blows. The need of weight to balance the rod has put walnut, as a material for reels, completely out of the running. As long as the weight of a reel is approximately right, one four or four and one-quarter inches in diameter is the most suitable, because with these line is recovered more speedily than with reels of smaller size. But this advantage of recovering line on high gear will be lost, if the spool of the reel is only half full. A broad reel, four and a quarter inches in diameter, will carry forty-two yards of foreline and rather more than one hundred yards of backing of adequate strength. If the line does not reach within a quarter of an inch of the bars or distance-pieces across the frame of the reel, more backing ought to be added, or a strip of leather or of greased felt wound within the base of the drum. The importance of having the reel properly filled is far greater than some fishermen think.

Generally speaking, a reel, four or three and three-quarter inches in diameter, will fit a fourteen-foot rod and one three and three-quarters or three and five-eighths, will balance a twelve-foot rod ; it is, in practice, a matter of finding the right line-capacity and weight in the same reel. I have designated three and five-eighths inches as the smallest reel suitable for salmon-fishing with a regular salmon rod, because rapid line-recovery is so important a factor.

In choosing reels of large capacity, it is better to buy one that is the right size and a little too light than one that is too heavy. The extra weight in the form of a few turns of lead wire can easily be added to the bottom of the drum and covered with a piece of linen, soaked in grease to prevent interaction between metal and wet line. This is a better plan than shifting the reel an inch or two down the handle to compensate for lack of weight, for, in wading deep, you will find the reel has to be held so low, that it is more than half awash.

The use of a line-guard to protect the line, as it proceeds from the spool, is a matter every fisherman must decide for himself.

It is a pleasure to find a reel accessible for cleaning, oiling and mechanical adjustments, such as changing the spring or the pawl of the check. Other excellent features to be looked for are a revolving surface on the reel or an edge, upon which, by a gentle pressure of the thumb or forefinger, an additional brake can be applied to a fish ; and also a mechanical means of adjusting the strength of the regular check. The usual forms of this check are the friction-drag and the resistance offered by a pawl to a cog-wheel, fixed on the main axis of the spool ; the second is the sounder method, because most kinds of friction-drag wear and grow weak and uneven with use. It is a great help in cleaning and adjusting the moving parts of the reel, if a small screw-driver, a small pair of pliers with a wire-cutter and some paraffin are always ready to hand. The miniature screw-driver with four blades, often supplied with bicycles, is extremely useful and quite strong enough.

I have been trying to describe what appear to me the most valuable features of modern reels of different makes : but my ideal reel would embody a simple means of taking off the check and of thus being able to strip the line from the spool, without the reel raucously proclaiming to the whole neighbourhood its own opinion of the day's fishing—and perhaps of me ! There is already a spinning-reel with an action that enables the fisherman to wind in silently ; this is a step in the right direction, but how happy will the fisherman and others be, when the loud-voiced reel is no more.

The original purpose of the check is to prevent the spool from rotating so fast, that the line doubles on itself and gets into a snarl ; if this should happen and the fish still be running strongly, there is an instant of heavy tension and the fish is free. The employment of a reel with too strong a check is as bad practice as using a light check and gut with a large margin of strength. One will bring disaster through a break ; the other does not give the rod-point a chance to play the fish, because the reel gives out line before the rod has had time to get into the bent position, so that it may give and take with the pull of the fish. It is very like playing a fish direct from the reel without the intervention of the rod.

There are occasions when a fish must be stopped at all costs from running to some part of the river, to which the line cannot reach, or from which it can never be brought to gaff ; and also when it is making for a dangerous snag. No ordinary check is of any use, and to hold on to the reel-handle is courting disaster. This is where the finger-check mentioned above comes in ; and there are few salmon that cannot be stopped in this way. If the tackle gives, there need be no regrets, because you were clearly doomed to lose that fish.

Reels should have a periodical overhaul. Every Sunday morning of the season one good friend of mine religiously takes to pieces, cleans and oils the reels he has used during the week ! And he breaks or takes apart all joints of the rods in use and thus avoids the possibility of there being a bad jam at the close of the season. When fishing is over for the year, the action of the check should be examined for any wear, the old oil removed by brushing the inside with paraffin, all traces of the paraffin wiped carefully away and fresh oil thinly smeared over the action. Sewing-machine oil and the oil, known commercially as ‘ Three in One,’ are the best I have yet discovered for the purpose. After a new reel has been used for a fortnight, it is well to look at the check-action, where the pawl interlocks with the cog-wheel ; if either of these shows the slightest sign of wear, one of them is of too soft a temper and the reel should be sent back at once to the makers. River-water in time of spate is full of grit and sand in suspension, which easily find their way into the mechanism of a reel and into the clearance between the frame of the reel and the inner circumference of the spool. This is the natural result of accidentally allowing the reel to be immersed in the water. Sand accumulating at these points may easily cause the spool to stick ; it will certainly cause a grinding noise and should be cleaned out.

Another way of getting dirt into the reel would hardly be suspected. It is raining very hard ; and you take shelter and place your rod with the butt on the bare ground and leaning against a tree. When you use the reel again after the storm, it is long odds you will hear a noise, like the grinding of grit between the teeth, and will not at first realize it is due to grit in the mud that has been thrown up by the impact of the heavy rain.

It is interesting to note that multiplying reels date from the latter half of the eighteenth century, Ustonson being one of their early makers. They were unpopular in those days in England, the country of their origin, and still are. But in the United States these reels are widely used ; and they certainly help an angler to gather line quickly, when the fish is running in towards him. More I cannot say, as I have not owned or used one.

From the same country comes the automatic reel. In this the handle is dispensed with and its work is performed by a spring that is wound up, as the line is drawn off, and winds up the line, when the fish turns. It remains to be seen whether either of these will ever be popular on the eastern side of the Atlantic and whether the automatic reel could be used for anything but trout and grayling fishing ; but of this I am sure : the reels of the future will be standardized by various makers, so that all parts of the action, with the exception of check-springs, the strengths of which must have some latitude, may be interchanged between the different sizes a particular firm makes in reels.

§ 5. *Of dressed lines.*

For some reason that has always been hidden from me and seems likely to remain a mystery, round-sectioned double-tapered salmon lines for fly-fishing are only made in one length : forty-two yards. Possibly every silk plait of this type, before it is dressed, has a common origin and is made on the same size of loom. But single-tapered square-plait lines, thirty and thirty-five yards long, can occasionally be bought. These are most convenient to fit on to reels that will not hold the ordinary line and a reasonable length of backing.

Thus on the score of length there is little latitude ; but lines vary considerably in quality, taper and weight, which is almost the same as thickness. The importance of getting the line to suit the rod cannot be too strongly emphasized ; the proper action of the rod depends on it ; you cannot produce your best casting unless these two are working in harmony ; a line too light will not carry into the wind nor slide through the rings when line is 'shot' (see p. 141) ; and too heavy a line will ruin a good rod more quickly than much unfair treatment, such as forcing it against a very strong contrary gale. A line ought to be heavy enough to make the rod-top work ; whereas a light line needs a great deal of muscular effort on the caster's part that should be supplied by the action of the rod, but this power of the rod, if it exists, remains latent, until it is set in motion by the pull of a line of the right weight.

The names, numbers and letters, denoting the comparative diameters of the ends and middle of tapered line, are not to be trusted in choosing a line. There is but one true test : the gauge. By the aid of this a line can be selected to work perfectly with a rod. If the line you have been trying will not bend the rod to its work and you are convinced a heavier one is needed, you measure the end and the middle of the line and buy or, better, borrow one that is a little thicker. If this now proves too heavy, your search has been narrowed down to a size somewhere between the two.

What is the good of a tapered line ? What advantage, not possessed by the level, does it confer on a fisherman ? The first twenty yards of a tapered line are considerably lighter than the same length of a level line, equal in diameter to the middle portion of the tapered one. Thus the rod, fitted with a tapered line, has to lift from the water and carry less weight to place the fly a given distance. A tapered line is a great help in casting delicately ; but throwing a short line against the wind would probably be more easily done with one that is level. But long and medium-range casting is undoubtedly carried out with greater efficiency, if a line is employed that tapers sharply and evenly to the top of the cast and if the taper is continued right through to the fly. In practice, however, salmon casting-lines are usually level.

The length of the taper varies in different lines from four to six yards at each end ; and the ratio between the thin and thick portions is by no means constant. The end of the line need not be very fine, if a collar is to be whipped to it ; but if the cast is to be looped straight on, the diameter of the line ought to be just greater than that of the top link of gut. A wide difference in size at this point causes an undesirable step in the taper.

§ 6. *Care of a line.*

The quality I look for in a line is suppleness, which is often a matter of individual dressing, as some examples of the same make are much harder than others. The best salmon line I have owned took me a fortnight to break in ; the worst was like a spring and had a natural kink in it, so that little bights formed at frequent intervals between the rings and the coils would not lie closely on the reel. I fought this second line for six months, gave it all kinds of dressings (except red deer's fat, Mars oil and vaseline, all of which I have found death to a dressed line) and then I surrendered.

I now expect to have to grease a new line a little, but once it is tamed it needs, for sunk-fly fishing, dressing and polishing at the most once a week during the time you are fishing. This attention and the most scrupulous drying after use should find the line in perfect condition at the end of the season, when it should be polished carefully, taken off the reel, spread over a disused bed or hung up in loose coils over laths to prevent the dressing from becoming tacky and covered with newspapers or a dust-sheet. If you go through this simple ritual, there is no reason why a salmon line should not last you for years. If, however, a line has become tacky through use in a hot climate, or from having been left all winter on the reel, you have the choice of sending it to be re-dressed or of buying another ; there are no half-measures worth taking in these circumstances. Putting a sticky line into powdered chalk or into whiting I have always found unsuccessful.

There is a right weight of line for every rod, if only you can find it ! I once received, when I was ordering a new line, an invitation to try those sent me and return what proved unsuitable ; but this was quite outside the bounds of ordinary courtesy. Often, however, a friend will come to the rescue and lend you some lines to try. If you can find out the maker and name of the line that works well with the rod, it is a simple matter to order another. Should these particulars have been lost, measure the diameters of the end and middle of the line and also the length of the taper ; you then have the essential data to help you in your search for one of similar weight. But experience in these matters, as in all else, must be bought ; and the best is generally the cheapest in the end !

§ 7. *Backing.*

Backing, called in the United States running-line, is a simple means of extending the law that may be given to a fish, beyond the forty-two yards allowed by the casting-line, and has therefore to be fairly strong and of small bulk. Fine cable-laid silk lines, any of the silk plaits, known generically as Nottingham lines, and those of flax fill these requirements. Linen, that is flax, lines are extraordinarily strong. Backing is sold unprotected by any dressing and should, before use, be treated with one of the preparations now on the market. The quickest and the best way is to put the line and a small quantity of the line-dressing into a small covered tin, warm it, until the preparation is in a liquid state, and shake the tin thoroughly. If the line is then taken out and allowed to dry, it will be found that the grease has gone well inside the texture. Although backing does not often get wet in the river, drops of water and rain work their way through ; and it is troublesome, when this has happened, to be compelled to take the whole of the backing off the spool, when the line has to be dried. If the backing is treated in the way just described, it will not rot.

At first sight it seems pointless to have more backing on the reel than is ever likely to be used ; but, unless the outer end of the casting-line is brought up to a point, where it just clears the reel-bars by a comfortable margin (about one quarter of an inch), the effect of the high-gearing of the reel is lost. And there is one more reason why, even in small reels, there should be as great a length of backing as will fill the spool. The surface of a dressed line taken round a small circumference is apt to crack ; the fuller the spool before the foreline is fastened, the less chance there is of the surface being damaged.

The right length of backing is not always easy to gauge. A good method of doing it is to wind very gently on to the empty spool the casting-line, attach the end of the backing and continue until the reel is comfortably full and ample clearance is still left. Cut off the backing and reverse the line ; this should give the maximum length of backing consistent with the correct clearance for the dressed line. The safest way of fastening the foreline to the backing is given on page 135. *But always remember to tie the backing securely round the inside of the spool.*

CHAPTER NINE

TACKLE (*continued*)

§ 1. *Concerning gaffs.*

THERE are three forms of gaff or cleik commonly used by the waterside. The short gaff-hook made to screw into the female ferrule fitted to a wading-staff, to a collapsible handle, or to a long net-handle. Secondly, a long-handled gaff which is needed on some rivers, especially where there are high banks at the water's edge. Under these conditions, the best form of gaff is one with a tapered shank, so that it can be lashed to a corresponding taper on the staff. And, if there is a groove or a shoulder on the taper of the shank to give the lashing a chance of a firm grip, the gaff will neither turn nor draw, when a fish is impaled on it. The point is usually protected by a sleeve of spring-steel, but a cork, fastened round its middle by a piece of cord to the handle and stuck on the point, or a long narrow sleeve of strong pliant leather that can be slipped up the shank before use, is quite an efficient guard.

The most handy kind is a collapsible gaff with an extension of thirty or forty inches ; this is quite long enough to make it easy for an angler using a sixteen-foot rod, to gaff his own fish.

The point of every gaff should be very sharp, parallel to the shank, and without that shepherd's crook bend that is sometimes given to it ; and the width of the gape should be not less than two and a half inches. Collapsible gaffs, made of ordinary steel, should be dried and oiled after use ; they are bound to get wet very often and rust so quickly, that those made of rustless steel are well worth the additional cost.

§ 2. *Other ways to land a fish.*

On some rivers there are parts of the season when the use of a gaff is forbidden by the Conservancy Bye-Laws, when fish can only be landed by running them up the shingle, by tailing them with the hand, by netting them, or by the use of a tailer. The earliest mechanical tailer was invented by Crawshay (Silver Grey of *The Field*) and put on the market about 1894 or 1895.

On the subject of the prohibition of gaffs late in the season there seems to be much confusion of thought. I once asked the Board of the district I was fishing what was their idea in making illegal the use of gaffs, after the end of September, unless they also made it an offence not to return the females. This strange reply came back : the protection of the stock, because so many fish were lost off the gaff and subsequently died !

Tailing the fish by hand is not really a nerve-racking feat. When the salmon is thoroughly exhausted and is lying on its side, so that it can be brought within reach, seize it at the wrist of the tail by the hand on the downstream side. It can then be lifted out safely, if your hand has been placed with the index-finger nearest the tail (see p. 53).

I am told a mechanical tailer is very reliable. It consists of a short handle fastened to a length of flexible steel rod, which looks like armoured cable ; to the other end of the rod is joined a noose of fine stranded steel wire ending in a collar that runs along the rod. The collar is pulled down and the noose is set, so that it will go easily over a salmon ; but, when it is released and the handle raised, it draws up and grips the fish firmly.

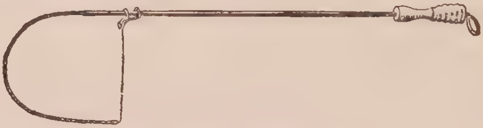


Fig. 9. THE TAILER SET FOR USE.

Lastly there is the net, which should have a depth of twenty-four inches and be laced to a strong pear-shaped wooden frame. If a fisherman is by himself, he will find it very difficult to hold the net with one hand against the force of the stream long enough to get the salmon safely into it, head first.

§ 3. *Killer.*

The handle of a collapsible gaff is most convenient for killing a salmon, but sometimes it is left at home and the gaff carried is one that is made to be screwed into the end of a wading-staff. One cannot very well beat a salmon with that and a stone is a messy and uncertain way of dispatching it, so that a small heavy killer or ' priest ' has been invented for the purpose. Such a killer can be bought at most tackle-dealers ; but I got the local blacksmith to make one to suit the capacity of my pocket. A very neat killer was designed a short time ago by Mr Wood of Cairnton, a drawing of which is shown in figure 10. Tie to it a loop of string, six or eight inches when stretched : slip your hand through this, if you have to kill a fish, when you are standing on a reef of rocks jutting up from the middle of the river-bed. Or fasten to the disengaged end of the string a small cylinder of wood, painted white.

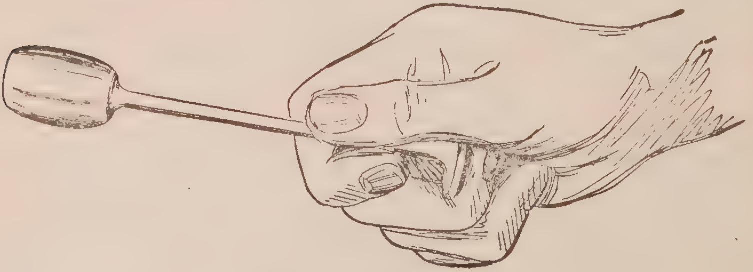
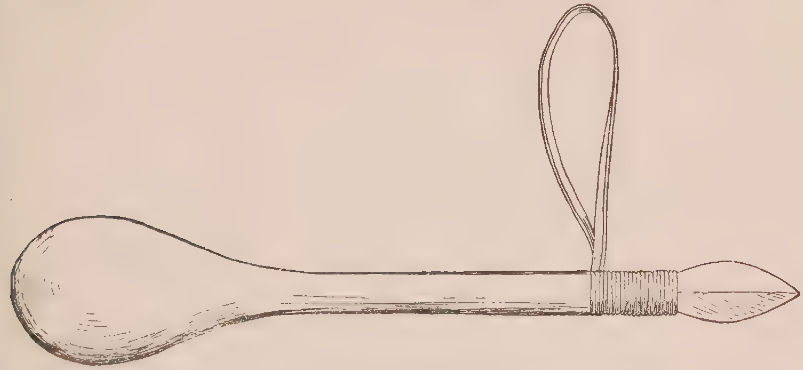


Fig. 10. THE CAIRNTON KILLER.

There is also ' His Reverence,' mentioned by ' Hi Regan ' in his book, *Fishing in Ireland*, which is a handle weighted at one end and slotted at the other, so that a flat-bladed knife or scalpel may be inserted (see fig. 11). This knife is used to bleed the fish directly it has been killed. The point of this knife is thrust right through the body close to the lateral line and just to the rear of the gill-cover. The salmon is then placed in the shade and flat on some branches, heather, or bracken, and allowed to bleed. After a quarter of an hour has elapsed the fish will have become cool and quite stiff. It can then be taken home in a bass or in a special form of bag. Salmon thus treated directly after they have been killed, travel more safely and are said to taste better than those which are not bled.



'HIS REVERENCE.' Fig. 11.

§ 4. *Taking a fish home.*

It may seem an ungrateful thing to say of an animal, which has just surrendered its wonderful free life in giving sport, that taking it home is sometimes a great problem. I am referring to the man who likes to go fishing by himself or cannot afford to do otherwise. A long walk back after a hard day's fishing makes even a ten-pound fish seem double its weight !

There are, however, several ways of carrying a salmon in comfort. If the fish has been killed in a pool above the place to which I have to return, I fasten one end of a piece of cord in the salmon's mouth and keep the other in my hand ; the fish is launched and followed downstream as far as my luck holds. But ' floating the fish home,' as Mr Chaytor who first wrote of this idea calls it, is of little use, where bushes and trees grow right down to the water's edge, and the river-margin is too deep for wading.

For some years past I have carried in my inside pocket (hare-pocket the country-bred tailor calls it !) a length of the cord associated with the old-fashioned tin-boxes or of sash-cord, in one end of which I whip or splice an eye, so that a running noose can be made ; at the end I put an inch-wide whipping of strong thread. Its total length is, perhaps, a yard, but enough should be allowed to make a noose for the salmon's tail and for the other end to pass through the gills, out at the mouth and there fastened, without the fish being too much in a curl when it is lifted up. A very short piece of branch or a soft pad, such as a tobacco-pouch, should be carried in the hand, so that it is not cut by the rope.

The salmon-carrier sold in tackle-shops is perhaps more comfortable for the hand. It is a short piece of wood of circular section through the long axis of which passes some whipcord. On one end of the cord is a hook that takes hold of the salmon by the corner of the jaw ; the other end is a running noose for the tail. There is no escape ! Of the two ways of carrying fish I prefer the former, because cord and string have to play many rôles by the waterside, salvage being among them.

Another method is to fasten a piece of cord to each end of a stout stick a little longer than the salmon and tie them to its mouth and tail, so that the fish arrives home undisfigured by a crease through being bent up. Two salmon can be carried in this way, but if there is a chance of more than two, it is wise to have some kind of bag. There is a canvas hold-all specially made to take three fish ; or one could buy the longest size of the bass the carpenter uses for his tools. A cotton lining is made for this and two shoulder-straps added, so that it is worn as a rucksack, but either of these has the advantage of keeping the fish straight and leaving the hands free to carry the tackle. Have in your bag some cuts of cheese-cloth of a suitable size to wrap fish in ; this will keep off flies and prevent the inside of the bass becoming unduly soiled with slime from the fish.

§ 5. *Sending fish away.*

It has been suggested to me that a few hints might be useful on the packing of fish for the post or for the railway.

If a salmon is to be divided and sent in two or more pieces, the difficulty is to pack it so that it shall arrive in good condition and not have leaked on the way. When a salmon is cut into two the entrails are extruded ; these should be removed and put on one side, the hollow in the fish washed and the entrails replaced and kept in position with a wad of nettles. A heap of nettles should then be placed on a sheet of grease-proof paper, the piece of salmon laid on top and more nettles grouped about it, so that it is entirely surrounded by them when the paper is wrapped round. Outside this put a newspaper and finish the parcel in the ordinary way.

Packing a whole salmon for transit is far easier. Special basses are made into which the fish is slipped, but, if these envelopes are not to be obtained, there is an excellent way of doing up a salmon in the tall rushes growing frequently and at times to the angler's confusion by the river's edge. Cut a good-sized bundle of these, choose the tallest, which will be from three to three and a half feet high, reverse some of them to bring the thin ends to the middle and make a carpet a little longer and wider than the fish. Lay the rest of the rushes on top, bind round tightly at intervals of six inches with stout string or, still better, with binder-twine and cut off the waste ends with a sharp knife.

§ 6. *Waders.*

Wading trousers can cause discomfort sometimes amounting to pain, or be so easy that one forgets their presence : it all depends on the way they fit. Here are the points to be considered in choosing a pair of waders.

First put on a pair of thick stockings and then get into the waders. Be sure the feet of the waders fit easily, but not loosely, and that the heels are in the right place and are correctly cut. If the tread of the foot goes beyond the angle of the heel, the wader will wear badly and, meanwhile, will be most uncomfortable. A little above the instep, the wader should be cut slightly on the big side to allow the high part of the foot to slip past ; but this allowance is often overdone. There should be a feeling of slackness around the thighs ; but the legs should be cut high up into the crutch, so that the angler shall not be hobbled on getting over a stile. The only way to test this is see whether one of the knees can with comfort be bent at right angles to the body. Waders should be very wide at the top. Trousers fitting closely to the waist make it awkward to get to the pockets of the fishing-coat.

In any pattern of trouser-waders, the inside of the leg just above the knee, the instep and the heel ought to be reinforced. If they are usually worn with each side alternately next the water, the sole should be doubled by placing two pieces of fabric together better sides outwards. The very light waders now to be bought are excellent for summer, but they will not stand much hard work, unless they are reinforced above the knee and the feet are made of *stout twill instead of the lighter fabric.*

There is little call for stocking-waders in salmon-fishing, but they find a place in the trout-fisherman's wardrobe and not merely to prevent him from getting wet. About midsummer, on many of the South-country streams, where wading is not allowed, something is needed to stand between the angler and the concentrated attacks of fierce and virulent insects, wholly out of keeping with the pleasant lush-grass from which they issue forth, seeking blood !

The feet of short waders should fit well, but generally the worst fault is that they do not reach far enough up the thigh.

Waders will last much longer if they are looked after and, when they have been used, dried carefully, either in the open air or in a drying-room, but never in front of a fire. A weak spot, or a place where a leak is suspected to exist, ought to be patched at once with a piece of fabric smeared with rubber solution, having first removed with petrol the old rubber and scraping away the worn threads of the twill. If the leak cannot be located, dry and hang them up and fill them with water. The water will soon trickle through the leak or small drops will appear in the porous area ; these weak spots should then be marked with a pencil (cf. *Trout Fishing from All Angles,* p. 93). Waders keep much better through the winter, if they are hung up and not folded and put away in a drawer.

Socks to be worn over the waders ought to be chosen for their thickness and hard-wearing qualities ; but, if they come well up the calf of the leg, they should not be allowed to drop down in folds over the ancle. A piece of elastic ribbon will hold them close to the wader, so that river-sand and fine gravel is unable to find a way inside the sock and then rub a hole in the wader-fabric, until a threadbare spot is formed.

For many years there has been a controversy about the right way to wear waders, tied in or open at the waist. One school maintains that to fasten waders at the tops is to court disaster, if the wearer falls into the river and be forced to swim for it, because the air in the waders will naturally go to the feet and support them at the expense of the head. The result of this would be drowning. The other side maintain that the tight cord excludes the water from the legs and therefore makes it easier to swim. I have always taken the advice of the former and have not found it at all hard to make for safety ; but when I read on page 76 of Knox's *Autumns on the Spey* an account of experiments in this connection, I began to think the whole matter out again.

If a man is walking along the bank, or is just about to enter the river, and then falls into the water, there is but an outside chance his feet will float uppermost, because there is a little air in the trousers that could collect in the wader-legs if there were room for it. The feet and ancles of my waders fit snugly ; otherwise I don't buy them. But waders that have already been immersed in the river contain no air worth considering ; and any that did flow towards the feet would have no effect whatsoever on the buoyancy of the lower parts of the body. Wade into three feet of water, look down, and you will be surprised how skinny and wrinkled your legs have become ! Is there any air in your waders ? Not a breath ! It is, therefore, perfectly clear you should postpone falling into the water, until you have thoroughly soaked your waders !

§ 7. *Of brogues.*

The best type of brogue I have yet found laces up the front with eyelets, and bears in front of, and to cover the lacing, a canvas tongue, held in position by two straps, which pass through loops on the tongue and also act as ancle-supports. Do not have exposed hooks as a fastening for brogues ; there is a danger of the feet being locked together, which might easily prove fatal, if the wearer was wading deep in a heavy current. This pattern is far and away the best ; it holds up the foot, keeps gravel out of the brogue and shields the brogue-fastening efficiently. The next best has a solid tongue and is then laced up in front. Do not have anything to do with brogues that rely upon a couple of straps for their fastening ; they are very dangerous, because they give no support to the ancles and destroy the necessary *liaison* between foot and boot, if stumbling and tripping over boulders is to be avoided. The easiest way to break an ancle is to wear such brogues ! For this reason alone, I would strenuously oppose the use of low brogues, cut after the style of Oxford shoes. With light rubber brogues I have not experimented ; I am told the main objection to them is their tendency to let their wearer slip about on rocks that are at all greasy.

Where sliminess is characteristic of the boulders in the river brogues should be soled with thick felt and only nailed in the heel ; but they must be reserved for river-work, as the felt will soon wear out, if the fisherman walks in them to and from the river. Have the felt put on in two layers ; the first attached as firmly as possible and glued or cemented ; the second or outer one lightly glued and sewn. As soon as a hole wears in the centre of the second sole, have a new piece of felt put on. Brogues treated in this manner last a surprisingly long time.

The problem of nailing is not at all easy to solve. Hobs fall out very soon ; and yet the riveted kind should be avoided. If you go into a shop that deals in this kind of brogue, you will be told these nails never fall out, as they are riveted through the sole. Clearly you will ask how fresh nails can be put in. The answer is that the brogues will have to be resoled! If it occurs to you to compute the average life of a good nail at one month, before it is worn so smooth as to be useless for the purpose, you will discover the trap so neatly laid for you. Every month you will be called on to pay for a new set of hobs—and for new soles!

Use screw-shank nails, ordinary hobs, or a mixture of one of these with climbing-nails round the edges of the soles; but never the kind that have to be riveted through the sole. There is one very safe type, the Wye nail, which is a large pyramid of hard-tempered iron or steel, screwed into a socket; and this, not the nail, is riveted through the sole. Nails of this design are easily replaced, but are expensive and only worth using in places, where other types have failed to give the fisherman a good grip.

Brogues must not be oiled or greased inside, as this will react on the rubber used in the manufacture of the wader-fabric and shorten its useful life. If they are stiff at the beginning of the season or in the morning, place them in a bucket of water before attempting to pull them on. See there are plenty of nails in the soles, as they are quickly kicked out, after a period of difficult wading. Buy a cheap shoemaker's last, a hammer and a supply of nails, so that you are independent of the cobbler. Never attempt to drive nails into dry leather; they come out in a very short time. Soak the brogues thoroughly and then put in the hobs.

§ 8. *Wading-staff.*

A strong wading-staff, of greenheart or washaba in preference to bamboo, completes the tale of the salmon-fisherman's equipment; this is to be had at a small cost from any dealer of repute. Some makers fit the top end of it with a female ferrule into which a detachable gaff, or a rubber button, may be screwed. An essential attachment is a wire loop whipped to a point within a foot of the top; to this is fastened a bull-dog clip secured to one end of a length of cord, which is long enough to form a convenient sling round an angler's shoulders. Thus the staff can be released and safely allowed to float a short distance downstream and yet be within easy reach, if needed, either in wading down or across, or as a gaff; in the meantime, both hands are free for the business of casting.

It is usual to fit the lower end with an iron spike; this makes a great deal of noise banging on the rocks. A quieter and equally efficient attachment is a thick rubber ferrule, which can be obtained from a stick-shop and riveted in place as well as fixed with solution.

§ 9. *How to carry flies by the waterside.*

The old-fashioned method of putting salmon-flies in parchment pockets has fallen into disuse, because few flies for this mode of angling are now dressed on gut links. The metal-eyed fly and, to a lesser extent, that dressed on a hook to which a gut-loop has been whipped, are used everywhere and so are the metal boxes fitted with spring clips, under which the bend of the hook may be slipped. One type of clip has a sleeve attached into which the point of the hook fits; this prevents the fly, when in the box, swinging about and represents an advance on the earlier type. The other objection to this form of container is that an accidental blow is apt to knock the clips out of truth ; and, occasionally, one sits on a haversack and forgets the presence in it of the fly-box ! On this account, a stout box of blocked tin is recommended in lieu of one made of aluminium ; the increase in weight of the box is a negligible factor compared with advantage gained in stability. The box is best protected outside with hard black enamel and with cream enamel inside. If the edges of the two halves of the box meet properly, no harm will come to the flies it contains, if it is thoroughly clean when put away for the winter in a linen-bag made to fit it closely. So much for moths. The other danger is rust.

I think the best way to prevent the hooks of salmon-flies getting rusty is to make an inflexible rule of putting used flies into a tin and to dry them carefully, after the day's fishing is over and clear the eyes of gut (or of varnish, if the heads have been repainted), before replacing them in the clips. There will thus be no risk of the hooks rusting under the clip ; the moisture will be taken out of the feathers (use blotting-paper or amadou for this purpose) ; it will give you a chance of inspecting and, if need be, sharpening up the points and of painting the exposed metal lightly with varnish, taking care not to allow any to get behind the barb ; and, should you like to have flies arranged according to size, they can best be sorted out at your leisure after fishing is over for the day.

As soon as the varnish at the head of a fly shows any signs of cracking, touch it up with celluloid varnish or Cellire. And remove the tarnish from a tinsel body, first putting the hook firmly in a vice and then rubbing it lightly with a narrow strip of chamois leather.

CHAPTER TEN

SALMON-HOOKS

> 'Then buy your Hookes the finest and the best
> That may be had of such as use to sell,
> And from the greatest to the very least
> Of every sort pick out and chuse them well,
> That Hooke I love that is in compasse round
> Like to the print that *Pegasus* did make.'
>
> JOHN DENNYS (*Secrets of Angling*).

§ 1. *Of evolution and hook-shapes.*

IN the pages of *The Treatise* there were careful instructions for the making and tempering of hooks and even woodcuts showing the primitive shapes of both bend and shank. The large hooks were made from 'gretter nedles : as broderers nedlis : or taylers : or shomakers nedlis spere poynte : & of shomakers nalles in especyall.' The process was to heat the needle until it was soft, a barb was then cut in it and a point filed carefully on the end. It was heated a second time for the formation of the bend and then tempered. This type of hook constructed from needles continued to be employed throughout the succeeding centuries, although their manufacture steadily improved. There were John Dennys' 'Hookes of hardest steele' and the Kirby Hooks spoken of by Barker, both of them rungs in the ladder of progress towards the Kendal, Carlisle and Limerick bends of the last century.

The hooks approved by Brookes (1766) were round-bend, long in the shank and bent outward rather than snecked. He illustrates them with some cuts, which show them to be very like the Adlington round-bend, although the latter has a straight point.

Cuts of Kirby hooks are given by Salter in 1808 ; while the earliest mention of Limerick hooks occurs in Taylor (1800), where he says he prefers these hooks to any others, especially when the shanks are tapered, so that a small and neat head is made possible. He is against any snecking whatsoever.

In plate two of Bainbridge's *Fly Fishers' Guide* four hooks are shown, Limerick, Kendal, Kirby and sneck ; of these he gives pride of place to the straight Kirby hooks (see p. 96). This is the first time any author has written about the comparative merits of the hooks of his day, and in this instance his objection to both Kendal and Limerick bends is well founded. The curious shape of the Limerick hook, as portrayed in his plate, has tempted me to reproduce all four hooks, so that they may be judged beside the modern representatives.

In the 'thirties of the last century, the London-made hooks fell into

PLATE 29

1. *Hamilton deep-gape* (*No.* 7). (*Hardy.*)
2. *Low-water double* (*No.* 9). (*Hardy.*)

3–9. *Low-water singles* (*Date:* 1930). (*Nos.* 10 *to* 4). (*Hardy.*)

10. *Dry-fly, square-bend sneck* (*No.* 6).
11. *Ideal* (*No.* 4/0). (*Haynes.*)
12. *The smallest roach hook made.* (*Allcock.*)
13. *Oval wire* (*No.* 4/0). (*Hardy.*)
14. *Kirby bend for lures* (*No.* 4). (*Hardy.*)
15. *Salmon bait-hook* (*No.* 1/0). (*Hardy.*)
16. *Summer hook, down-eyed* ($\frac{7}{8}$"). (*Farlow.*)
17. *Summer hook, up-eyed* (*No.* 4). (*Forrest.*)

18, 19. *Rational series, Dr Pryce-Tannatt* (*Nos.* 1" *and* $1\frac{3}{16}$").

20. *Forged snecky Limerick* (*No.* 4). (*Allcock:* 1619.)
21. *Model Perfect, kirbed, down-eyed* (*No.* 4). (*Allcock:* 4991.)
22. *Model Perfect, straight, down-eyed* (*No.* 4). (*Allcock:* 4991S.)
23. *Kendal sneck, tapered* (*No.* 4). (*Allcock:* 195.)
24. *Carlisle round-bent* (*No.* 4). (*Allcock:* 262.)
25. *Sproat, hollow point* (*No.* 4). (*Allcock:* 777.)
26. *Limerick, hollow point, down-eyed* (*No.* 4). (*Allcock:* 1810.)
27. *Cholmondeley-Pennell Limerick* (*No.* 3), *returned eye, upturned shank.*
28. *Cholmondeley-Pennell Kendal, returned, straight and brazed eye.* (*Date:* ? 1875.
29. *Kendal tapered.* (*Date:* 1870.)
30. *Kendal tapered, superfine, blued.* (*Date:* 1870.)
31. *Hollow-point Limerick tapered.* (*Date:* 1880.)
32. *Sneck, square-bent.* (*Date:* 1870.)
33. *Cholmondeley-Pennell, short-shank, round-bent, down-eyed.* (1880.)
34. *O'Shaugnessy Limerick.*
35. *Silver Hook* (*No.* 5). (*Alexander Martin.*)
36. *Limerick, forged.* (*Date:* 1880.)
37. *Adlington, of Dublin, round-bent* (*No.* 4). (*Date:* 1870.)
38. *Kelson, forged.* (*Allcock:* 1901.)
39. *Dublin Limerick, tapered.*

(Red: 1: '943.)

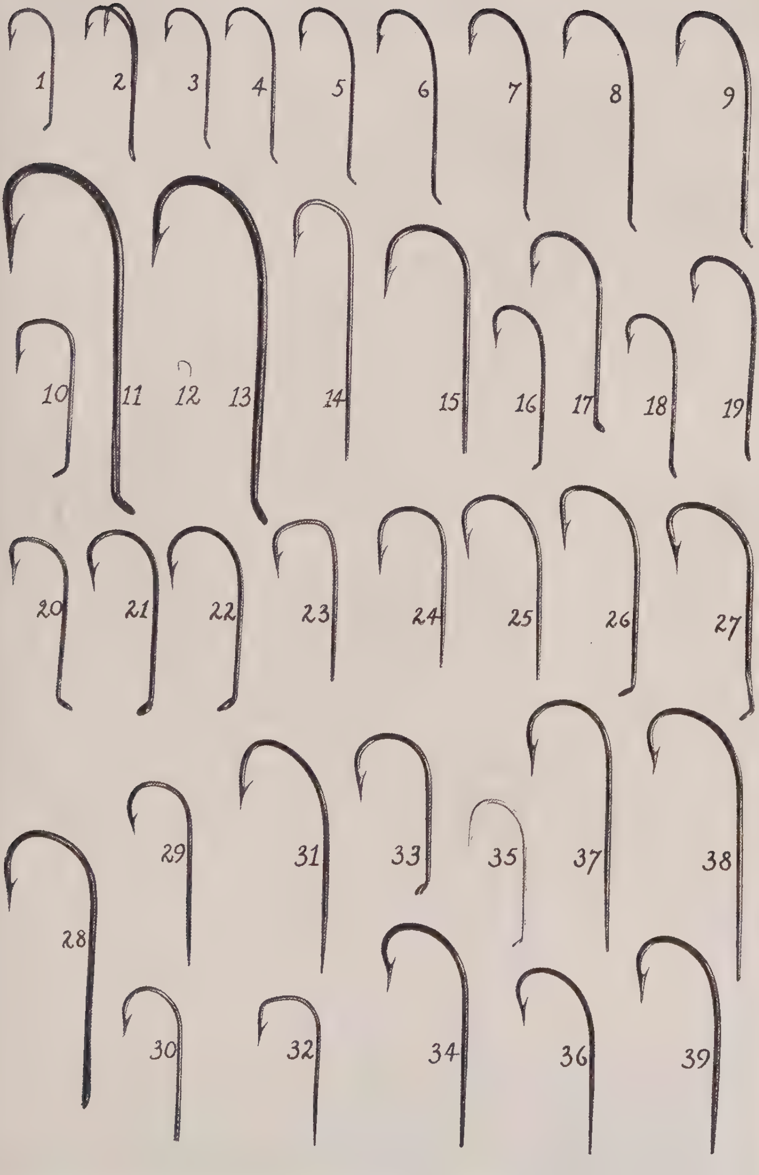


Plate 24

disrepute; for in 1834, Belton, only a visitor to Ireland, goes out of his way to say how bad they are and states his preference for the real O'Shaugnessy Limericks, which are very like those made by Kelly of Dublin, but are deeper in the bite and project more.

Kirkbride is the first to record the sizes of hooks. 'In Carlisle we number the hooks in the following way: we speak of large salmon, middle and small salmon hooks; large gilse, middle and small gilse hooks'; and so on with sizes called worm, cod-bait and fly hooks, ending with midge hooks. Of these there are twelve sizes, numbered from 1 to 12; whereas in the Kendal scale there are fifteen sizes and they are numbered from 15 to 1. Even as early as 1837, there was confusion in hook-sizes!

In *The Fly Fishers' Text Book* (1841), there is an interesting discussion on the comparative merits of common Limerick hooks and those made by O'Shaugnessy. The latter, as made by the original maker, who died about 1820, were constructed from metal hammered out and forged, but the barbs were filed out of the solid, not cut and bent up, as in common wire hooks. The true O'Shaugnessy hook cost in those days six shillings a dozen: the common sort sold at four shillings to one shilling a dozen according to size.

By far the best chapter on hooks is in Francis' *Book on Angling*. In it are discussed the merits of the Limerick, the Sproat, the Kinsey (an American shape manufactured by Hutchinson of Kendal), the sneck, the Carlisle and the Kirby bends; photographs of these will be found in plates 24, 25. But there is only one mention throughout the book of an eyed-hook and all the flies shown are dressed on gut-loops; evidently this type of hook had not come into general favour. 'Some, again, employ hooks which have an eye already forged at the end of the shank; and though this in time is apt to fret and wear the gut somewhat, it is, if the tie be looked to now and then, not only the neatest and safest way, but the fly is safe until it is pulled to pieces or smashed against a stone.' After so favourable an opinion of eyed-hooks had been expressed, only the difficulty or expense of obtaining a stock of them in good design could surely have prevented their universal adoption; yet they did not achieve popularity until the first decade of the twentieth century.

§ 2. *How the salmon-fly got its eye and other cognate matters.*

The original form of attachment of hook to line was by a link of plaited horsehair whipped securely to the hook and fastened to the casting-line by means of a loop woven or knotted in the end of the link. About the first quarter of the eighteenth century another method came into practice side by side with the old, namely, the loop of twisted silkworm gut, which functioned exactly as does the modern eye. Not, however, until 1845 was the eyed salmon-hook mentioned in angling literature. This occurs in O'Gorman's *Practice of Angling*, wherein he shows very plainly his intense dislike of the 'newly invented hook . . . with an eye in the shank. It is another Scotch invention, and as to its usefulness may be placed on a par with the newly invented method of breeding salmon. Any fly tied on a hook of this description must be clumsy.' His subsequent arguments against the hook are not by any means convincing, but are patently

PLATE 25

1. *Square-bend, spring-eyed treble, oval wire.* (*Hardy.*)
2. *Round-bend.* (*Hardy.*)
3. *Limerick bend.* (*Hardy.*)
4. *Square-bend, very stout oval wire.* (*Hardy.*)
5. *Cage-stop treble, designed to give support to the shell of a Devon minnow.* (*Hardy.*)
6. *Oval wire double* (*No.* 5). (*Hardy.*)
7. *Partridge treble* (*No.* 5).
8. *Birch-Reynardson square-bend double* (*No.* 4). (*Forrest.*)
9. *Dublin Limerick double.*
10. *Single-spike, Limerick-bend, round-wire double.* (*Hardy.*)
11. *Kinsey ringed hook* (*U.S.A.*). (*Millward-Bartleet.*)
12. *Long Dee, strong wire.* (*Millward-Bartleet.*)
13. *Dublin Limerick, straight point* (*outpointing*), *down-eyed.* (*Millward-Bartleet.*)
14. *Limerick bend, forged, long-pointed, down-eyed.* (*Millward-Bartleet.*)
15. *Common Limerick, straight and metal eyed.* (*Date :* 1875.) (*By courtesy of Messrs Haynes, Cork.*)
16. *Dublin Limerick, eyed* (2"). (*Millward-Bartleet.*)

17-25. *Rational hooks of Dr Pryce-Tannatt, sizes :* 10, 9, 7, ⅞", 1", 1⅛", 1¼", 1⅜", 1½", 1" *This series proceeds upwards to* 2¼". (*Forrest.*)

(Red : 1 : ·907.)

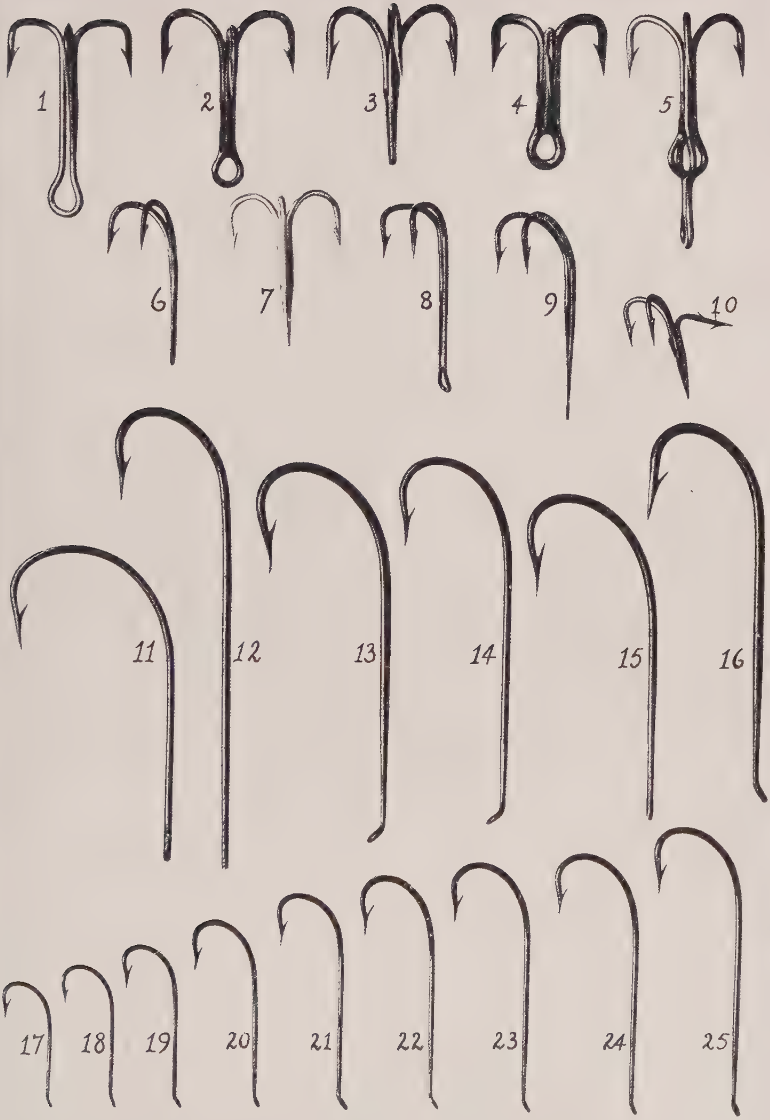

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Plate 25

conceived in a spirit of unreasonable antagonism, the only example of such a trait in the whole of his two volumes. It would have been far more valuable, had he troubled to say whether the eye was turned in the wire of the shank or was made of a separate piece of metal and afterwards whipped on. On page 74 of Hewett Wheatley's *Rod and Line* (1849), there is a mention of 'hooks having a fine eye at the extremity of the shank.' This kind of hook, he said, he employed for large as well as for small flies; but it is difficult to be sure whether the salmon-flies figured in coloured plates are tied on hooks with a metal or with a gut eye. The patterns are very similar to those in *Ephemera's* treatise.

In the second edition of Stoddart's *Angler's Companion* (1853), page 57, there is mention of an improvement in the salmon-fly of recent date, namely, 'the substitution, as a mode of attaching it to the line, of a small loop or eyehole of gut at the head or shank-end of the hook, instead of a full length of the same material.' It is very tempting to identify this with the 'Scotch invention,' of which O'Gorman is so scornful. Of these loops Stoddart approved most highly, as the Tweed salmon-fly, shown in colour in his book, are dressed on Phillips' Dublin-Limerick hooks with gut-eyes.

The eyed trout-fly hook of Mr H. S. Hall came on to the market much later, about 1875; it would, therefore, have been of great interest to have known who was the inventor of Stoddart's hook, in what quantities it had been placed on the market in O'Gorman's day and what was its price.

There is still a school of anglers who prefer their salmon-flies dressed on gut-loops, because they maintain there is less strain on the cast through having an elastic joint between metal and single gut. Also it is argued that the metal eye causes a hinge in the gut close to the eye that allows the fly to drop in the water instead of the fly being supported by the solidity of a cast that has no knuckle in it. I think this is distinctly the better argument in support of the gut-loop; but I do not recommend it in preference to the *well-designed* metal eye, except for very large flies (3/0 upwards) and for fishing in a strong and gusty wind. Loops made of well-chosen twisted gut may be depended upon to last a reasonable length of time; but I deprecate the existence of even the smallest element of doubt in the safety of a part of my tackle and, therefore, use eyed-hooks exclusively. I have used tennis-racquet 'trebling,' the fine gut taken across at the head and foot of a racquet, for loops and have found it satisfactory for large flies. Mr Chaytor recommends loops made of violin E string, on the grounds of strength, durability and pliancy.

§ 3. *Of the nature of salmon-hooks.*

The modern range and variety of hooks for salmon-fishing is very extensive and embraces many combinations of the different forms of the parts of a hook, namely, the eye, the shank, the bend, the barb and the point. Hooks are still manufactured without an eye and are called tapered-shank hooks, as the wire is filed until it is decidedly finer towards the end where the head will be formed. The shank of these is sometimes slightly curved or 'hog-backed,' so that the angle of incidence of the point is different from that which would result from having the wire quite straight. To these tapered-shank hooks it is usual to whip gut-loops; but in the long-shanked hooks, termed Long Dees, a metal eye is occasionally fastened with strong silk. This is bad practice, because it is hard to fasten metal to metal unless the outer surfaces are scored to give the silk a grip.

Eyed-hooks are the most popular kind to-day and there is a great variety of them. The wire of the shank is merely bent round to form an eye, but a small gap is too often left through which the gut may slip or an edge is left against which the gut is fretted. The Pennell hook is free from this objectionable feature ; it is fitted with a returned eye, the tapered end (in some inferior makes the wire is not tapered there) fitting snugly under the turns of silk that serve as a wing-foundation. Unfortunately Pennell combined this improvement with an upward kink in the shank near the eye, which was designed to place the point in the favourable position for penetration. The only result was to make the hook an awkward one upon which to dress a silver or gold body. But the true reason for the kink was undoubtedly to neutralize a fault that he considered had been created by the down-turned eye ; the error, however, lies more in the construction of the eye than in the idea of turning it down. I can see nothing wrong in an eye turned slightly up or slightly down ; it is the extremely *rétroussé* kind that causes the fly to *skirt* or carries a bubble of air under with the fly. The upturned eye is the more convenient for tying on the gut, especially when one is using the Cairnton knot (see p. 131).

A well-designed upturned eye has been given to the new low-water hooks used in dressing the low-water flies employed in greased-line fishing. This eye is of a different gauge of wire from that of the main shank and is sweated on as a comparatively narrow loop, in which there is little or no room for fine gut to move and get chafed against the metal, and no resistance offered to the water. This joint ought to be made with the greatest possible care.

The metal from which hooks are made is steel, soft when the various processes are being carried through and afterwards tempered to bend under a certain strain, to recover and not to break. Hooks of the highest quality are now finished by coating them with black enamel, or, in some makes, by bronzing them. The old blue finish has quite fallen into disuse, as the metal underneath was very liable to rust.

The latest method of protecting the metal of hooks is by coating them with silver plate ; this is said to make them all but invisible, because the bright surface reflects back its surroundings and functions as does a mirror. This form of invisibility is conferred on many fish, the scales of which are more or less perfect reflectors. But it has yet to be shown that fish, trout or salmon, are in the least degree influenced by the presence of the hook ; my own opinion is that, if they see the hook at all, they do not regard it either as anything to be feared or as something not possessed by the thing for which they mistake the lure (see pl. 24 : no. 35).

The wire from which hooks are manufactured to-day is either oval or round in section. The oval-sectioned wire is said to be stronger at the point where the barb is cut ; I imagine, however, the hammered hooks, the section of which is oblong would give the hook-maker the same advantage, namely, more metal from which to cut the barb. Hammered hooks are old inventions. The first notice of them is in Kelson's book, in which he praises those sold by Holland of Winchester.

It is now unusual to find any points left very long, as the fashion is all for the short points and small barbs. But not so long ago barbs were all too often cut very rankly, so that it required considerable effort to ensure proper penetration of the hook. The best style, I believe, is a small but efficient barb, a short needle-sharp point and a distance between the extreme point and the bend that will just allow the hook a solid bite. The gape, that is the vertical depth of the bend as distinct from the horizontal depth or bite, will vary with the comparative length of the shank. Under the conditions that will be brought about by the new methods of fishing a great depth of gape is unnecessary. The hooks illustrated in figs. 3–9, 18 and 19 on pl. 24 show what I consider to be admirably designed for the style of fishing of to-day and the near future.

As to shapes of hooks, many have been invented since men first took an active interest in fishing; and the *bends* a fisherman ought to be able to recognize are Kirby, Kendal, Limerick (Dublin, Pennell and Crystal), Sproat, Carlisle round-bend, Adlington round-bend, sneck (never employed in salmon-fishing), square-bend. The best hook to suit modern conditions is a combination between the Sproat and the Limerick, in which the point is short, the bend slightly angular, the barb of moderate dimensions and the eye a little turned up. Mr Pryce-Tannatt's Rational hooks of Sproat shape most nearly fill the bill; and the sizes are based upon a common unit of measure, the inch.

I should have preferred to have seen the hook-scale depending on a decimal system, such as the metric; but any hook-notation that is commonly and universally comprehended is better than the present confusion. If the drawing of Mr Wood's 'Cairnton card' is referred to (p. 120), a method can there be seen demonstrated by which the transition from the present dual system to a scale of sizes based on a unit of measure could be simply and gradually carried out. This complex way of measuring hooks has been in existence since the days of Chitty and Kirkbride, possibly even before. In Ireland alone there were three notations: Sell, O'Shaugnessy and Philips. On this side of St George's Channel a similar state of confusion obtained. Why cannot Redditch, which, after all, supplies practically the whole angling world, agree on a scale and make the ordering of hooks and flies a simple matter?

Of the styles of bend mentioned above I would advise the beginner not to purchase for salmon-fly dressing any hooks that have a sneck, or have a square bend. Hooks that have a shoulder just behind the barb are very apt to make the point scratch the skin and not to penetrate; some of the Limericks are great offenders in this respect (see pl. 24: no. 39). Crystal Limericks have a sharp angle in the bend and are long in the point (no. 27); these ought to be avoided, for a salmon would be forced to take an enormous mouthful of fly before coming in contact with the point. This aspect will be treated in another place (p. 340).

Long-shank round-bend hooks are the only type suitable for worming; but do not buy the cheap Irish second-grade kind, the points of which are rank and quite innocent of the whetstone.

The weight of the wire that should be used in making single irons depends on the part they are to play when flies have been dressed on them. If, as I expect, Mr Wood's greased-line fishing becomes general practice the heavy hook is no longer a necessity, except for certain kinds of fishing; there are occasions and places where heavy irons will remain in favour, such as in the swift and solid rivers of Norway. But light irons make possible fine points ; and this in turn allows the angler to employ much finer gut than he otherwise would, the requirements of the current having first of all been satisfied (see p. 126). Extremely light hooks are in demand in dressing dry flies for salmon, one of these, a pattern made for Mr Hewitt, is illustrated in plate 24. Hooks designed for this purpose ought clearly to be wide in gape ; otherwise the point will be blinded by the denseness of the hackle-fibres. In the same way, wide-gape square-bent snecks are the best hooks on which to dress Sedges for trout-fishing.

Most writers on fly-tying advise their readers to test a hook before tying a fly upon it. The way to do it is to stick the hook into the edge of a piece of soft wood and strain it upwards by a sudden jerk. If the metal goes back to its original shape on the tension being relieved, the temper is right. A soft hook will remain bent ; one too hard-tempered will snap.

The point of a hook can be made more keen by the employment of a file or a whetstone. I advise the latter, remembering what Venables said : 'Have also a little whetstone about two inches long, and one quarter square ; its much better to sharpen your hooks than a File, which either will not touch a well-tempered hook or leave it rough but not sharp.' That excellent advice is two hundred and fifty years old !

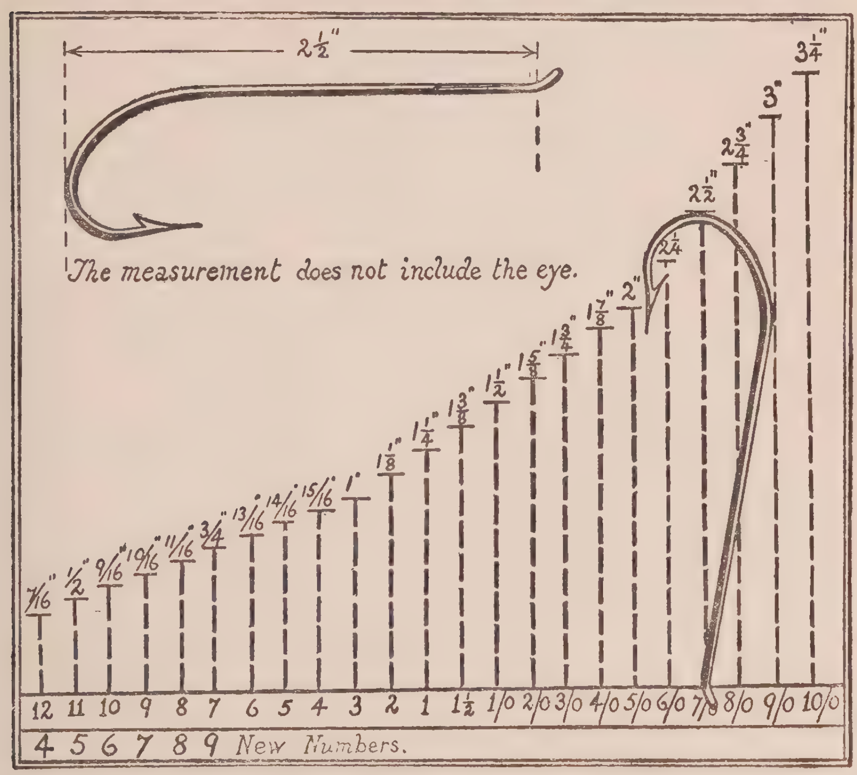
The best kind of stone to use, and use very sparingly, is the finest grain of carborundum or a composition of *terra-cotta* colour, known as Indian stone. These will quickly remove from the point any excess of enamel and make keen a blunted or a dull point. But always whet a point with great circumspection and polish it afterwards by rubbing the abraded area very gently with the stone.

§ 4. *Of scales and much confusion.*

On pages 113 and 117 I referred to the difficulties artificially created in the beginning of the last century by the existence of several distinct systems of measuring the sizes of hooks. I believe as many as five were once in operation at the same time : Carlisle, Kendal, O'Shaugnessy Limerick, Dublin or Philips Limerick and Sell of Dublin. To-day the confusion is little less, because there are the New and Old notations and many irritating variations between the same size of different manufacturers, some of whom make in the trout-hooks a size as small as no. 18, which is the equivalent of some other firms' no. 16. From time to time there have been attempts made to obtain something like unity in notation, but for obscure trade reasons they have been unsuccessful. But a change is coming, because fishermen are undoubtedly going to demand a reform on the lines of the Rational scale of hooks suggested by Mr Pryce-Tannatt. And the way to ensure an easy transition has been shown by Mr Wood, who has designed a card inscribed with both scales, numbers and sizes in inches (fig. 13). After all, it is only a matter of getting used to thinking of hooks in parts of an inch and the change has been effected ; the trade is sure to follow suit.

§ 5. *Concerning doubles and trebles.*

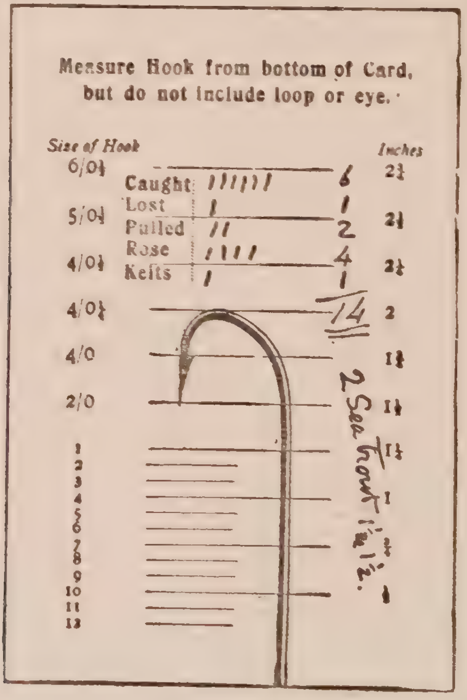
The arguments for and against double hooks for fly-fishing have so often been aired in the press and in angling books, that there is little need to do other than refer the reader to Kelson (p. 36) and Chaytor (p. 205). The substance of the objections is that one hook levers the other out, or assists the salmon to do so when it is *said* to be rubbing the side of its mouth against a stone, and that it takes considerably more force to fix two hooks firmly in a salmon's jaw. The former objection is most likely true; I mean the danger of one hook forcing the other to lose its hold, not the presumed habit of rubbing a hook out, which I hold to be conferring upon a salmon something approaching sub-human intelligence.


2½"
The measurement does not include the eye.
7/16"
½"
9/16"
10/16"
11/16"
¾"
13/16"
14/16"
15/16"
1"
1⅛"
1¼"
1⅜"
1½"
1⅝"
1¾"
1⅞"
2"
2¼"
2½"
2¾"
3"
3¼"
12 11 10 9 8 7 6 5 4 3 2 1 1½ 1/0 2/0 3/0 4/0 5/0 6/0 7/0 8/0 9/0 10/0
4 5 6 7 8 9 New Numbers.

A SCALE OF SALMON-HOOK SIZES. **Fig. 12.**

A salmon goes to the bottom and struggles in a perfectly natural position for getting most purchase on the thing that is holding it. If, in the process of struggling, the salmon thrusts its neb amongst the rocks, it is surely not because it hopes thereby to cut the gut against a sharp edge, nor is it an attempt to entangle one hook, so that the second hook shall be withdrawn from its hold in the salmon's jaw. Eye-witnesses have declared they have seen this happening; but I am certain they have been deceived by the illusion of the undulating motion of the whole body, which would give the impression of a head being bent from side to side in an attempt to 'rub out' the hook. A similar kind of illusion of being able to chew the food is always presented by a fish in a glass bowl; and to one who had never seen a fish before the illusion would have been complete. And so real was it that even I, who knew extremely well the orfe I was keeping, could make myself believe for a moment the working of the gill-covers and lips was really the ordinary process known to us as mastication !

For myself I use single hooks in preference to doubles, because, to a large extent, I have not experienced the need for them, except in the very small sizes, which give me some hope of landing a lively seatrout and of getting a firm hold on a salmon, when the size of fly demanded by conditions of water and light entails the use of a very small hook. Double hooks certainly sink more readily than do singles. They ride on an even keel in small sizes, because the centre of gravity is low; whereas small singles are apt to turn over.


Measure Hook from bottom of Card, but do not include loop or eye.

Caught 111111 6
Lost 1 1
Pulled 11 2
Rose 1111 4
Kelts 1 1
14

2 Sea trout 1¼ 1½.

Fig. 13. THE CAIRNTON CARD.

The design of double hooks has been improved so much in late years, that part of the old objection to them has been weakened. If fine wire is used, if the points are needle-sharp, the shanks short and the eyes small oval-shaped loops, the double irons thus produced will hook and will hold well ; but it ought always to be borne in mind that there are two points to penetrate. These hooks should only be employed in sizes up to one inch and a quarter in length. Dr Pryce-Tannatt, whose views on doubles I am here quoting, tells me that Crosfield alway preferred doubles in sizes up to one inch in length. Whenever the latter wished to prevent the fly from sinking, which the additional weight in metal tended to cause, he cast straight across and *pulled through* (see p. 182), so that the fly swam close to the surface.

If, however, you decide to experiment with doubles, make sure you obtain those which are brazed solidly together and have fine and very sharp points. Doubles constructed by whipping a second and tapered-shank hook to the first are not very safe under heavy strain, although the absence of complete rigidity in them may afford a little compensation that will checkmate the tendency of one point to lever out the other.

There is little to say about treble hooks. The wire of which they are manufactured is normally far too stout in gauge. The most satisfactory type has wire as fine as is considered safe and points that are very short and exceedingly keen. I prefer hooks of the round-bend type ; but Limerick and square-bend (Birch-Reynardson) trebles are often seen. Those made of snecked hooks are to be avoided. Perhaps the best of all are the Partridge treble hooks, the features of which are the light wire, the short points, the small barb, the narrow but adequate bite and the wide gape. Hooks of this type will penetrate easily with little, if any, assistance from the angler (see pl. 25 : nos. 8 and 7).

§ 6. *Concerning the terms employed by hook-makers.*

Tapered-shank refers to hooks that have no eyes turned in the wire and rely for attachment to the cast upon a gut-loop whipped to the metal ; and the taper of the shank is designed to make this joint as neat as possible.

A *hammered* or *forged* hook can be recognized by the flat sides of the bend. Originally the forging was done by hand ; the hook was placed upon a small anvil and several blows delivered on it with a small hammer. This method is now superseded by a single blow in a machine-press. The effect of forging is to harden the metal and to thicken the wire in a direction that has most work to do in preventing the bend from opening under the strain of holding a salmon. Thus a slightly-finer gauge wire will do the work of a heavier, a fact of some importance in designing a hook for low-water fishing for salmon.

A *guttered* hook is one that is cut with a file down each side of the barb, in order to remove any ragged edge left after the formation of the barb itself.

A *snecked* hook is one that is square-bent and kirbed or turned out. Kirby hooks are snecked, but the peculiar bends given to these marks them off very clearly from pure snecks.

A *hollow-pointed* hook is one that has had its point hollowed out from in front of the barb by a process of hand-filing. As this has not been done successfully by machinery, the term is synonymous with hand-made and only hooks of the highest grade are thus treated (see pl. 24 : no. 31).

An *outpointed* hook has its point set with a file outwards, that is, away from the line of the shank in the vertical plane, not in the horizontal, which is characteristic of a sneck.

Hog-backed shanks are bent in a slight curve that is said to assist the penetration of the hook-point.

The term *long-pointed* refers equally to the length of point in front of the barb, which is frequently too great, and to the distance from the point to the bend.

Gape refers to the width from the line of the point to that of the shank ; *bite* to the depth from barb to bend.

CHAPTER ELEVEN

GUT, CASTS, ETC.

§ 1. *Of silkworm gut.*

SPAIN is the chief country from which silkworm gut is exported; and those engaged in the trade, in obedience to the best tradition of the South and with a carelessness much to be commended in a land, where the sun and a few small wants satisfied bring a peace unknown to our busy Northern life, are not particular to a grade or two how they make up the bundles. As soon as gut arrives in this country, it has to be picked over again, but not so successfully that the same grades of different dealers agree. Perhaps it is as difficult to fix a standard as it would be laborious to keep to it and, though it may be a matter of use, skill is needed in picking the best quality of gut by passing the strands between the finger-tips to discover those which are round in section and free from angles. But for the variation in drawn gut there is but little excuse. The names, under which grades are distinguished by importers in this country, have accompanied the gut across the sea. Here is a list of them with their diameters in thousandths of an inch and the strengths of the casts made from them.

Royal hebra	·019–·022	5x	stout	or 0/5
Imperial	·018–·020	4x	,,	1/5
First marana	·017–·018	3x	,,	2/5, 3/5, 4/5
Second marana	·016–·017	2x	,,	5/5, 6/5
First padron	·014–·016	x	,,	
Second padron	·013–·015		,,	
Regular	·012–·014		medium	
Fina	·011–·013		fine	
Refina	·009–·012	x	,,	
Refinucha	·007–·011	2x	,,	

(The finest of this denomination is known as 4x natural, which is the equivalent of 2x drawn.)

There is very little colour in natural gut. The dull blue or mist-green shades one comes across are the result of dyeing, but whether they help to make the cast less visible cannot be said; the final verdict, as in most fishing matters, rest with the fish. Camouflaged casts have been made by staining them three or four different colours; link by link. Against a background containing much detail, such as trees or high banks, they might be less visible to the fish; but gut is far more often seen by fish against the unbroken expanse of grey, or white, or occasionally blue, known to us as the vault of heaven. There is but little in the idea and the best disguise is now recognized to be the crystalline translucency of unstained gut.

To Mr E. R. Hewitt we owe the idea of staining gut in a two and a half per cent solution of silver nitrate and afterwards dipping it in an alkaline solution (such as ammonia) to arrest further action of the acid. The result is the darkening of the gut and the neutralizing of the flash or glint from its surface. I have found it extremely efficient in dulling trout casts, but have yet to give it an exhaustive trial in salmon-fishing.

Air and light are the great enemies of gut. Time itself is not the worst agent of decay, unless it is considered as the measure of the chances the others have had to do their deadly work. But the age of gut is a good way of determining the damage light and air have wrought.

Most grades of salmon gut, if there is no sign of wear in them, and unused trout gut above 1x, can be kept through the winter and used with safety in the next season ; they should be wrapped up in the folds of a chamois-leather or in the pockets of a case lined with this material, but care must be taken that all the dressing has been removed from the skin. An old wash-leather that has done much service is ideal for the job ; and to exclude the air I do not know a better way than slipping the gut-case into a large envelope, which should be stuck down, marked and put away with the rest of the tackle. The gut that is condemned should be put into the fire.

Drawn gut. The fine strands needed for trout-fishing cannot be found among the thinnest grades of natural gut, although *regular* to *refinucha* inclusive are used for seatrout casts and for the stout ends of tapered trout-casts. Gut to be reduced to the finest sizes has to go through a draw-plate, in which are fixed jewels pierced with perfectly circular holes of known diameters. The strands are passed through hole after hole in succession, until they are pared down to the required thickness. The measure of the diameter cannot be taken as a true guide to the strength of natural gut, because a slight flatness or an uneven part reduces to its own local strength that of the whole strand. The diameter and therefore the strength of drawn gut is constant throughout the whole strand, but the edge of the jewel shaves away a priceless asset, the original tough surface which no amount of polishing will ever replace. For this reason I prefer natural gut to drawn, when the strength I want can be supplied by either kind.

It is well worth going to some trouble to get a gut-gauge. Those on the market at present are not satisfactory or really accurate. One made of thick metal and well nickeled, after being cut and drilled, is the best, but it is difficult to buy.

§ 2. *The care of gut.*

Fine gut very quickly loses its strength under the strain of being cast, especially against a wind, of being disentangled from surrounding bushes and of playing a fish. It is surprising how quickly rough water, wind, grass and weeds cause the surface to fray ; and in salmon-fishing fine gut needs renewal far more often than might be expected. Even when the cast is quite new an angler should cut off the gut close to the eye in changing a fly, whereas in heavier gut he would have untied the knot and have used the same end several times. There is a dictum which solemnly lays down that no wise angler will attempt to kill a second fish upon the same fly, unless he has cut that fly off the cast and retied it on the fresh end.

If the wind is against the fisherman or if he is not timing the casting as well as he should, a dangerous hinge is often formed in the gut just above the metal eye of a large fly; for this reason gut-loops are to be preferred to metal eyes, when large flies have to be used on a windy day. Even on a calm day, after a period of long and apparently well-timed casting, an unaccountable hinge is sometimes discovered.

If the surface of gut has been roughened through casting in windy weather, or after playing a fish, it can be smoothed by rubbing it with a cork.

There are two points of the utmost importance to remember about gut: it should be damp before a fly is tied on; and after fishing is over for the day it should be taken out of the cast-damper, dried and put away from light and air. Also it needs careful watching for any sign of weakness, such as a knot that has drawn or is not quite tight. Beyond this, if the gut is neither frayed nor hinged and the knots are secure, there is nothing to tell one how the cast is standing up to its work; it must be judged by its age and occasionally tested by straining it moderately with the hands, moderately only because a heavy pull will increase any weakness already there. Gut at its best will only stand its maximum strain once. The cast ought not to be gripped by the finger-nails, but by wrapping it round the fingers.

If there are any doubts hidden in the mind that the cast is not sound, if confidence in its strength to withstand the first snatch of a salmon wavers for one instant, the cast should be discarded ruthlessly, extravagantly and at once. It is a cheap insurance against disaster. To be broken by a salmon taking the cast round a snag or for the fly to come away from its hold during the height of the battle is the lot of all men; it is nothing and leaves no rancour behind in the heart. But when a salmon breaks the gut at the first snatch, there remains great bitterness and self-reproach and a sense of the undignified position of an angler fishing without a fly.

I had my lesson some years ago on the most perfect salmon day I have ever experienced. Three casts were in the damper; one of these I took out at the waterside and tested gently. It broke easily. To my horror, the next snapped under a lighter strain. The third I did not dare to test; there were no more reliable casts nearer than twenty-four hours. All through that day I was conscious of the gut being weak and it was fatal to success. Six fish were hooked and lost: the first five I held for a minute, until the hook, which was reasonably sharp came away. I then shortened rod (see p. 136), so that the strain should not fall too heavily on the gut. A sixth fish took the fly; but, in trying to fix the hook, I broke the gut and the salmon kept the fly. Only a lack of confidence in gut I knew was unsound prevented me from landing some of the five fish.

§ 3. *Artificial gut.*

In late years there has been on the English market an artificial gut, the strength of which far exceeds that of natural or silkworm gut. I believe the first supplies of it came from Japan. This gut, telerana, or whatever be the name bestowed on it by the trade, is composed of fine fibres of silk laid in a strong gum, so that it is very tough and strong; and, if the gum is of the best kind, the gut will retain its tensile strength for a long time, when it is wet. Whether, however, an angler will decide to adopt it as a substitute for natural gut depends on his reading of this critique of its qualities.

Artificial gut is to be bought for about seven and sixpence (a very high price!) in coils forty yards long; the price varies a little with the thickness. This coil is continuous and there are no knots in the gut. The surface is dull and without that glint of natural gut, which, I am sure, frequently attracts a salmon's attention. Its strength is enormous; some I had withstood a pull of seventy pounds, but it was exceptionally good. Against the excellent qualities of *comparative* cheapness, strength, freedom from knots and dullness of surface should be weighed the disadvantage of lightness, lack of substance, when it is wet, and the difficulty of getting a reliable supply. Throwing a fly with a cast of artificial gut requires far more effort than it does with natural gut; and, as the lighter gut is much slower through the air, the timing of the forward stroke against the wind has to be adjusted.

There is also considerable difficulty in securely knotting a fly on it. Tie in a piece of well-soaked artificial gut a figure-of-eight knot and try to draw the knot along the gut, either through the teeth or through the nails of forefinger and thumb. It will be found quite easy to do, which clearly shows that, with metal-eyed hooks, artificial gut is not safe to use, unless it is attached by a special jam (see p. 131) or by means of a long loop whipped in the end and passed through the eye of the fly. So treacherous is this gut, that I always make a thumb-knot in the extreme end of the cast before turning it over to whip down into a loop. Above all, quality varies. Do not expect to get the same, because the price, name and description is the same as in former years!

§ 4. *Casting-lines.*

A casting-line, known generally as a cast, is usually constructed of strands of silkworm gut, knotted together until enough have been joined to produce the required length. But some anglers employ as a substitute a length cut from a roll of single or twisted artificial gut. These are the materials commonly used, but the manner of joining the strands is considered in another place (pp. 127 and 130); here I am dealing solely with the way to choose casts to suit conditions of water and light and the size of the hook, on which the fly is dressed.

A river in high spate brings down with it mud and sand in suspension, so that the range of underwater vision is restricted. Thus it matters little if thick gut is employed. If you are lucky enough, in time of thick flood, to bring the fly within view of a fish, refusal to accept it will not be fault of the gut. Under these conditions, a cast made of extra heavy gut (I have employed tennis gut with success), and even as short as one yard, can be attached to the collar, or to the end of the line, without fear of scaring a fish.

A very large fly will often be found to have a rank point, which needs a good pull to ensure proper penetration beyond the barb; this calls for the use of stout gut (about ·02 inch in diameter). Besides that, a cast of adequate thickness offers you every chance of playing successfully, if not of holding, a fish that has, perhaps unavoidably, been able to reach the centre of the river, so that the force of the swollen stream becomes its natural ally.

The system upon which a fisherman to-day determines the strength necessary to the casts he employs in fly-fishing depends upon the style of fishing he is going to adopt. In the greased-line method comparatively-fine gut can safely be used, because the cast is slack when the fly is taken and the delicate point of the hook is driven home by the force of the current bearing on the line. The strain formerly to be borne by tackle at the moment of 'striking' as the fish took the fly, has in this method been eliminated; thus the gut, strong enough to stand the pull of a fish as it is struggling, will pass what was a more severe test, the taking of the fly and the tightening up, when it is known the fish is on.

In the old way of fishing with a sunk fly and a taut line, the gut had to be stout enough to withstand the violent pluck of a fish moving through fast water; thus the angler was driven to the choice of casts, far more thick and powerful than those indicated by the state of the water.

The choice of casts for greased-line fishing has already been ably dealt with by Mr A. H. E. Wood in his chapter on this method. In this chapter, I am giving a rough idea of the type of cast needed in the ordinary sunk-fly way of fishing, although in this I would advocate trying to keep the line as slack as possible, so that the salmon can take the fly away with it and not be brought up suddenly by the check of a taut line.

Good salmon-water calls for a greater length and a thinner grade of gut than that mentioned above. In high water, when a certain amount of mud and road-washings are still coming down, one and a half yards of *first marana* (·017) has served me well on the rivers I have fished; but a heavier grade of *first marana* (·018) or even of *imperial* (·018–·02) may well be needed for fishing in very heavy currents or in difficult rivers (for gut sizes see p. 123). When the water is clearing, the cast should be progressively reduced in thickness from ·016 to ·014 inches in diameter. But there is always a limit in reducing the thickness of gut, if the margin of safety in tightening on a fish is to be maintained. Stoutness of gut should always be considered in relation to the stiffness of the rod-point and to the size of the fly. It is otherwise in dry-fly fishing for salmon in which the rod-point must be built to conform to the requirements of fine gut suitable to this style of fishing. On many occasions the strength of the gut, the shape of the barb, the keenness of the point of the hook and the pliancy of the rod-top are mutually interdependent.

In low clear water during the summer it pays better to lengthen the cast than to fish so fine, that the sudden snatch of a salmon may easily break the gut. A heavy fish may be played to a standstill on very fine tackle, but can it be brought up to the gaff? Not often! One is forced to try and work downstream, holding the fish in position, until the gaff can reach out to it. I am assuming here that you are intending to gaff the salmon yourself. If you are attended by a gillie, the point does not apply so fully; but, even then, I am sure both of you will feel happier in the knowledge there is a margin of strength in the cast. The character of a pool to a large extent determines the grade of gut to be used. It may easily happen that conditions demand a fine cast and the salmon is lying in a spot whence, if it is hooked, it is certain to go downstream to a place,

Plates 26 & 27

WYE, HEREFORDSHIRE

TOP : LUCY'S POOL. BOTTOM : CARROT'S HOLE.

where you cannot follow and from which it is almost impossible to recover it by main force. There are three courses open to you. Leave the fish alone until you can find someone to assist by gaffing the fish in the pool below, or before it goes down; leave it until the coming of evening permits the use of thicker gut; or take your chance with thicker gut and a longer cast, three and a half yards long or so.

The question is still unanswered whether salmon are frightened by the presence of thick gut or whether they see gut at all and pay much attention to it. My own opinion is that the glint of the gut in the sunshine is more likely to scare fish than the gut itself. Fine gut lets the fly lightly on to the water; but whether this is really an advantage can only be discovered, by observing the effect of the clumsy throwing of heavy gut above the head of a salmon lying in clear water. The disturbance may easily prove to be a means of advertising the arrival of the fly! The glint of the gut, the flash of the varnished rod, the shadow of the gut thrown down to the bed of the river: there is the making of a good argument in these, so that the old delightful uncertainty of it all is recaptured! The rod can be protected with matt paint, the finest gut, within reason, may be used and its flashing surface be partly dulled with the juice of a dock-leaf: all these precautions can be taken and the fisherman will as ever lean heavily on the stout stick of faith!

As the water *falls in* and becomes really clear, smaller flies are employed and the gut can safely be reduced in thickness. A level cast of fine gut does not carry well into the wind; it pays, therefore, to taper the cast from *padron* (·013) down to *refina*, or even on occasion to *refinucha* (·001 to ·007). The fine ends need careful attention and constant renewal after a few days' use, especially when there has been a good deal of wind. You will have no cause to be apprehensive of trouble in playing a salmon on fine gut, if the tip of the rod is pliant and it is kept well up during the early part of the fight. Every year, many salmon are killed on trout-gut, but almost invariably a trout-rod or a seatrout with a flexible top will, on enquiry, be found to have done the work.

It may be felt that I have recommended very short casts; but, unless the water is clear, I do not care to use three-yard casts, because the gut will often have to be reeled up through the top ring, in order to bring the fish near enough for me to gaff it. Passing through the rings under strain does not affect the collar, but it often bruises single gut.

§ 5. *Making up a cast.*

Select the strands needed for the cast according to their thickness and place them in a bowl of cold water. Here is a concrete example. I wish to make up a fine tapered cast for greased-line fishing. For the head I take two fourteen-inch strands of *padron* (·014), which length for the moment will be regarded as the standard; in the end of one of these will be made the loop. I continue with two each of *regular* and *fina* (·012 and ·01) and three each of *refina* and *refinucha* (·009 and ·008 or ·007). These strands should be distinguished by tying round them differently coloured silk and then put in the water to soak.

Join these strands according to grade by the knot selected, and then grade to grade to form the whole taper. Place on the knots only a moderate tension, as gut will stand its maximum pull only once. Cut the waste ends off, coil the cast up and place it in an appropriate envelope or in a compartment of the case, in which casts are carried. The top strands can be dyed in various colours of ink to assist in identifying at a glance one type of cast from another.

§ 6. *Collars.*

The difference between the diameter of the cast and of the tapered end of the line is often so great that, unless some means were employed to continue the taper throughout, a hinge would be formed in the line, as it was thrown forward. This would prevent the fly from reaching the spot aimed at ; and the line itself would make a splash when it reached the water. Against the wind this effect is more marked ; the line travels forward and leaves the gut in a loop behind it ; while a properly-tapered line and cast carries evenly into the eye of the wind. It is quite usual, therefore, to see a collar of gut employed between cast and line. One kind is made of lengths of gut twisted together in threes and fours to form links, which are married end to end. The collar is tapered by varying the number and thickness of the strands used in a link ; but the better is one made of a tapering plait of gut. It is stronger than the twisted gut and, because it is far more solid, carries better against the wind. Loops are fashioned at each end, to which the line and the cast can be fastened ; but I find that, whether the upper loop is passed through a loop whipped in the end of the casting-line or the line is secured with a hitch, the result is clumsy and often too thick to pass through the rings. There is a safer way. Cut off the top loop of the collar, whip the gut to the line and varnish the silk, so that the joint is quite smooth ; if this is done well, the line and collar will slide easily through the top ring, when the line has been reeled up short, so that a fish can be brought close in to the gaff. This removes the danger of the line sticking, when a salmon makes a final dash for freedom.

After some time has elapsed since the collar was fastened to the line, or when there has been a long period of contrary winds, a hinge or bruise is sure to have formed in the line, just above the point where it meets the plait. This should be watched for carefully and, if it is seen, the collar should be cut off and re-whipped to a fresh place.

It is quite unnecessary to use a collar, when the end of the line is about the same diameter as the top of the cast ; this is why, for light fishing, such as with a greased line, the tapered cast is far and away the best type. And the finer gut near the fly can be renewed as often as necessary ; while the stouter top will last the season through.

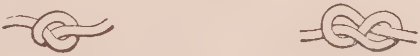
When fishing is over for the year, cut the collar off and store it away for the winter in a fold of chamois-leather, together with the other gut, stout enough to keep until the next season. A plaited collar of good quality ought to last three years, provided it is taken care of.

CHAPTER TWELVE

KNOTS AND SPLICES

§ 1. *Fastening lengths of gut together.*

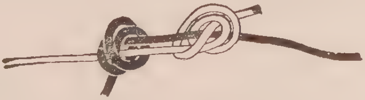
SOME of the well-known methods of joining gut have been omitted, because I feel that a fisherman who knows two good methods will find them quite enough in practice.



TWO FUNDAMENTAL KNOTS. Figs. 14 and 15.
The thumb and the figure-of-eight.

The double fisherman's knot.

Place the two strands side by side and overlapping by four inches or so ; with the right-hand end (which ought to be nearest the body) make a loop outwards and round the farther strand ; complete the loop over the strand and back underneath it ; repeat this, taking care to keep both loops open ; thrust the end of the gut through the pair of loops, as though you were making a simple thumb-knot. Moisten the bent parts of the gut and draw tight. Try to induce the knot to travel a little to the right, this will shorten the end that is subsequently to be cut off as waste. The left-hand half of the knot is to be treated in similar manner (fig. 16). The two knots ought then to be soaked in water and pulled together ; or they should be put in the mouth, lubricated thoroughly with saliva and then drawn up. The result is a neat barrel, from which the waste ends can be shaved with a safety-razor blade.



THE DOUBLE FISHERMAN'S KNOT. Fig. 16.
A very safe fastening but rather wasteful of gut.

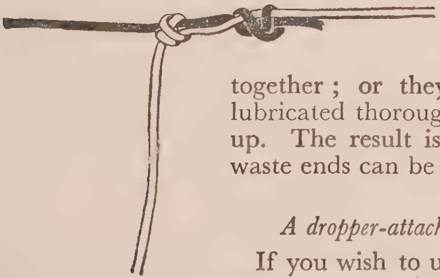


Fig. 17.
Dropper-attachment formed by leaving long the upper waste end of the double fisherman's knot.

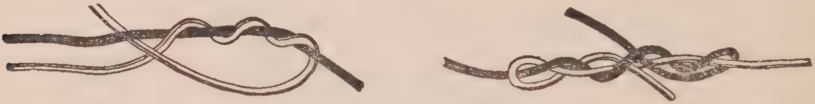
A dropper-attachment.

If you wish to use a second fly, an unusual thing in salmon-fishing, the upper end of this knot should be left long, so that a length of gut about four or five inches long projects from the top end of the knot (fig. 17); to this the dropper-fly is tied. When the gut of the attachment has been consumed, by changes of fly, cut the cast and re-tie, leaving a long end as before.

The double blood knot.

This is by far the best and safest knot for joining strands of heavy gut to make up a salmon cast. It was first described in print by Mr Chaytor (p. 187) and has since been employed by numbers of grateful fishermen. The method is as follows.

Lay the two strands parallel together, one overlapping the other by about five inches; the short end of the left-hand strand should be next the body. Take three complete turns with this end about the long strand and towards the right; bend it back and slip it through the gap between the two strands, just short of the left thumb, the duty of which is to keep all secure (fig. 18). This is the first half of the knot. Reverse the strands and repeat the process; but, in poking this end through the strands, be sure it is pointing in the opposite direction to the other. The length of the strands thus pushed through is of no moment, as they will slip and shorten, until the knot closes up (fig. 19). Place the knots in your mouth or in a basin in water; draw the coils together by pulling first on the long ends and thus shortening the waste; pull the waste ends in a direction at right angles to the lie of the main strands; and then draw the coils really tight, taking great care not to introduce any sharp angles into the gut



Figs. 18 and 19 show the right-hand half of and the completed double blood knot.

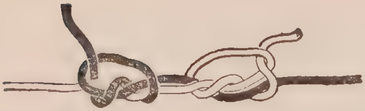


Fig. 20.

THE BARREL KNOT.

A simpler way of joining gut than by the double fisherman.

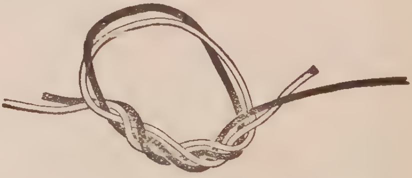
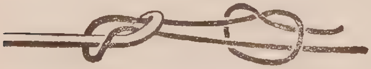


Fig. 21.

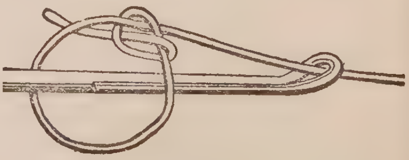
THE DOUBLE WATER KNOT.

Very strong but uses up a great deal of gut.



This slip knot was originally figured by Chitty in the *Flyfisher's Text Book* (page 81). Later, it was adopted by Mr H. S. Hall as a fastening for dry flies.

Fig. 22.

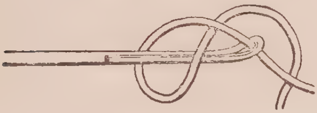


TURLE KNOT. Fig. 23.

that might develop into a ‘ knuckle ’ or hinge. Shave the ends as close as you can and you will have constructed a neat and perfectly-secure joint that is as strong as the gut itself.

§ 2. *Tying a fly to the cast.*

The Turle knot (fig. 23) and the slip knot (fig. 22), which are used so widely for fastening eyed troutflies are not described here, as they have already been fully dealt with in *Trout Fishing from All Angles*, p. 188 ; but diagrams of them have been included to show their purpose.



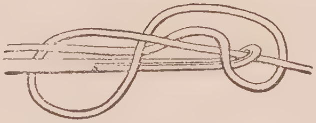
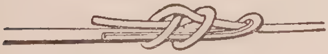


Fig. 24. First stage. SINGLE CAIRNTON. Second stage. **Fig. 25.**

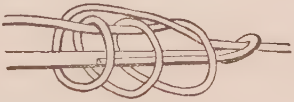
The Cairnton jam.

This method of tying on an eyed hook is the most practical that has yet been discovered ; it is safe, easily tied and quickly untied, when a new fly has to be put on. The single form of it, suitable to all flies dressed on eyed hooks smaller than 2/0, is made in this way.



Completed.

Fig. 26. SINGLE CAIRNTON.

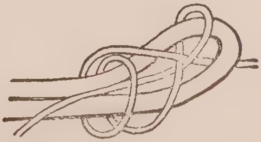


DOUBLE CAIRNTON. **Fig. 27.**

For gut-loops and for large metal eyes the double form (fig. 27) is safer and almost fills up the space in the wire loop. This is made by taking the gut round the neck of the hook an extra turn, which gives the necessary increased security.

Fastening a fly to artificial gut.

Ordinary knots are very prone to come adrift, when they are made in artificial gut or ‘ telerana.’ The jam here shown is said never to slip ;



ARTIFICIAL GUT JAM. **Fig. 28.**

I cannot, however, offer any guarantee, as I have not given it a full trial. But I have no doubt it would be safe to employ in attaching flies that are dressed with loops of gut or of violin string.

Mr Chaytor's reef-knot jam.

Pass the gut through the eye, round the neck of the fly and back again through the eye in the same direction in which it originally went. Let the short end be considered to be furthest from the body; bend it towards you; return it underneath the long or nearest strand; point it towards the eye; and push it under the coil that is embracing the neck of the fly. Draw all tight and hide the end amongst the fibres of the throat of the fly (see figs. 29 and 30).

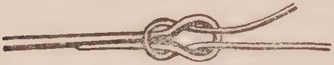


Fig. 29.

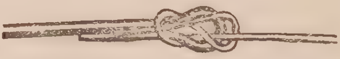


Fig. 30.

MR CHAYTOR'S REEF-KNOT JAM.

This is particularly good for securing gut-loops; but for metal eyes there is nothing quite as convenient as the Cairnton knot.

§ 3. *Fastening gut and wire to swivels.*

Pass the end of the gut twice through the ring of the swivel; bring it round in a long loop and push the end back and round the standing part three or four times; pull this up tight and cut the gut, leaving an eighth of an inch of it sticking out (fig. 31).

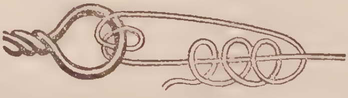


Fig. 31. FASTENING GUT TO THE RING OF A SWIVEL.

This jam draw up into a neat tight barrel. Leave an eighth of an inch waste.

Another method is put the end through the ring twice and make with it a thumb knot that shall include the standing part. Draw this up to the ring and cut the gut off in the same way as above.

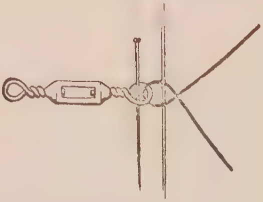
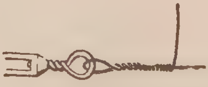


Fig. 32. WIRE TO A SWIVEL-RING.

Take care that the loop of the wire is free to move on the ring.

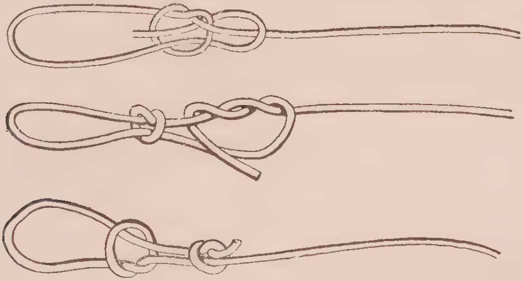

THE FASTENING COMPLETE. Fig. 33.

Wire is very easily fastened to a swivel, if an inch-long iron nail is inserted through the loop of the wire. Lead the end of the trace through this ring; bring it at right angles across the standing part (fig. 32);

twist the two wires together three or four times; and then continue coiling the waste end down the standing part, taking care that every turn shall lie snugly against the preceding one (fig. 33). With the flame of a match take the temper out of the end of the wire and roll it gently round. It is always worth going to the trouble of cutting wire with wire-cutters, as the hook on the end of it made by twisting it catches in everything and often punctures the tip of a finger.

How to make a loop at the head of a cast.

The common method of constructing a loop by means of a thumb knot or a figure-of-eight knot in a bight of the gut causes the cast to lie at an angle with the line. Figures 34, 35 and 36 show three ways to set about producing a much neater loop. In drawing the knots up tight, wet the gut thoroughly; otherwise the holding-turns are sure to work loose.



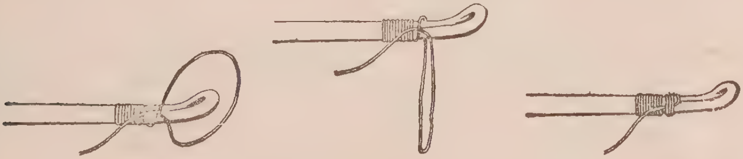
Figs. 34 to 36

VARIOUS TYPES OF LOOPS FOR THE HEAD OF A CAST.

§ 4. *Methods of fastening off.*

The whip finish.

This is a safe way of securing the whipping at the end of a rod or the tying-silk at the head of a fly; the ‘ invisible knot ’ Chitty calls it (1841). When the silk has reached a point within six or three turns respectively of the point where the binding is to terminate, place the left thumb on the latest turn and make a long loop with the silk; bend this back and slip it under the latest turn (fig. 37), which will, if strained, grip it



Figs. 37 to 39.

Show stages in the whip-finish employed in fastening off silk at the head of a hook. The same method is generally employed at the end of rods, staffs etc., anywhere, in short, where the lapping is fairly close to the end. The reversed loop of silk must be kept taut on the left-hand side until the waste end has been finally pulled through.

securely. Continue winding with the silk of the loop for the required number of turns, taking care to push the loop every time over the end of the rod or the head of the fly (fig. 38) ; this will ensure the bent-back silk lying under the new turns. Then draw the loose end through and, in fastening off at the head of a fly, cut the silk off close (fig. 39). There is a neat way of hiding the end of a binding on a rod. Strain the silk first one way and then the other, so that a tiny gap is formed between two adjacent coils. Hold the silk taut, insert the edge of a very sharp knife or of a safety-razor blade ; press gently against the tension on the silk and the latter will be severed, so that the end cannot be seen, when the coils are pressed together again.

The whip-finish in the middle of a rod.

The whipping is proceeding along the rod from left to right, over the rod and away from the body. Hold the silk, as it comes from under the rod, in a long bight and take the end of the silk loosely round the rod, working inwards, as shown in figure 40. Then work in close turns with the original part of the silk and pass the turns in succession over the loose end. Draw the waste through and finish as described in the preceding section.

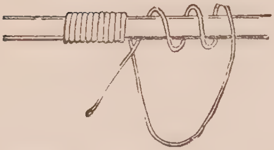


Fig. 40.
A method of making a whip-finish in the middle of a rod.

The loop-finish.

Another way of fastening off near the centre of a rod is carried out by including in the last four or five turns a loop of strong fine silk (see fig. 41). Bind the turns of silk specially tightly and then slip the end of the tying-silk through the loop, the closed end of which is pointing outwards (fig. 42). Hold the coils in position and pull the loop and waste through. Finish off as above.

§ 5. *Attaching a collar to the foreline.*

A collar or a cast can be fastened to a line in several ways. A knot is made in the end of the line ; the latter is then put through the loop at the head of cast or collar ; and a tiller-hitch or figure-of-eight knot is made to secure it. The figure-of-eight is far and away the best, unless the loop is cut off and the collar is whipped to the line.

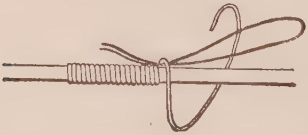


Fig. 41.
THE LOOP-FINISH WITH LOOP INSERTED.

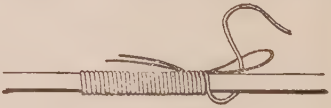


Fig. 42.
THE LAPPING IS COMPLETED.
The waste end has been pushed through the loop and it only remains to draw the silk under the turns.

Before starting to whip line and collar together, bite the end of the gut and flatten the last eighth of an inch of the line, so that the joint shall taper at each end. Bind them tightly with well-waxed silk ; make off with the loop-finish at each end ; roll the whipping on a flat surface to make the joint solid and apply varnish.

A small eye whipped in the end of the line, within which the loop of the cast may interlock, is a practical way in trout-fishing ; but I have not tried it with a salmon line.

§ 6. *Attaching line to backing and splicing.*

Whip a small loop in the inner end of the foreline ; whip in the backing a loop large enough to pass right through the largest reel you possess ; pass the long loop through the small and over the reel ; draw this up and the backing and line are securely joined and yet can be separated in a minute. By this means lines can be changed about with the least possible delay.

The word splice means a joint made by interweaving, as in a rope, or by lashing together two things where they overlap. Splicing in the former sense is little used by the fisherman in the usual routine of tackle-making and mending. But it often happens there are two ends to be joined, either temporarily or to form a solid joint. The temporary splice is that employed in putting up a rod in which splices have supplanted ferrules ; for this purpose a leather thong or insulating-tape serves best.

The construction of a solid joint is performed by planing the ends to a fine and equal taper ; adjusting the length and inner faces of the taper, until there is a perfect fit ; glueing the two ends together with very hot marine glue ; and binding them tightly and closely with turns of strong binding silk. Wipe away the superfluous glue and allow the joint to set hard in a room free from draughts. The rod should then be finished in the ordinary way.

§ 7. *Putting rings on.*

See that the rod is facing in the right way and that the legs of the top ring are embracing the correct faces of the rod. Then tie down temporarily the rings throughout the rod and see they are properly aligned. Start whipping on the top ring, first with a number of turns of fine copper wire, then with the ordinary binding-silk of the thickness of button-hole twist. The silk should be set in on the rod, below the ring-supports, and taken up to the last coil of wire ; in this way the step between metal and wood is successfully spanned and the coils do not fall down and leave an ugly gap. Loop-finish.

The intermediate rings are whipped on in the same way as the lower portion of the top ring ; that is to say, the turns of silk are made inwards. Loop-finish and varnish thinly.

CHAPTER THIRTEEN

CASTING A SALMON-FLY

§ 1. *Putting-up a rod and holding it.*

BEFORE a man begins a course of instruction in casting, he should be proficient in putting his rod together, in taking it down and in the methods of holding it, while he is fishing out a cast. The chief points in the former are as follows. The line should be threaded correctly through *all* the rings, be taken straight to the top ring without encircling the rod at any point, be brought from the reel at the place where it cannot be rubbed by a distance-piece or cross-bar and in the course of fishing it should always be kept clear of the reel-handle or any projecting part of the fishing-outfit, such as the crook of a slung gaff or the top of a wading-staff. The rings of a rod-joint ought to be carefully aligned, but this care is for nought if the joints are put together in a slovenly manner. In sliding the male ferrule into the female, be sure not to force it; it is far better to lubricate the ferrule with fat (see p. 96). In taking two joints apart, do not hold them by the wood, but by the metal parts, so that the set of the greenheart or bamboo shall not be disturbed nor the wood twisted (see p. 96). See that the reel runs easily and is firmly fixed in the seating and all is ready for fishing.

The two-handed rod is held in two ways. The more common style is with the right hand at the top of the handle, the left gripping the butt, near the end, rather loosely and the button pressed against the hollow of the left thigh, where it is to a large extent pivoted. The left hand does very little beyond keeping the rod-end in contact with the thigh and preventing it slipping off. This attitude is somewhat strained and is not suited to delicate tightening on a fish.

Mr Chaytor employs another and far less tiring way, which he calls *shortening rod*. There is a description of it on page 23 of his book, a brief summary of which is included here. After a cast has been completed, the right hand retains its hold on the rod, while the left hand grips it above the right and near to the bottom ring. This brings the handle of the rod back on the right side of the body and the centre of balance somewhere between the hands. You can hold the rod like this all day without an excessive feeling of weariness, which the other method of holding is sure to cause to all but powerful and hardened fishers. Another advantage is the delicacy and promptness with which it is possible to tighten on a fish, if it is judged necessary to do so.

§ 2. *The overhead cast.*

Undoubtedly the best method of learning to cast is to watch a first-rate caster at the waterside and serve an apprenticeship under him; or to go to a teacher, receive a course of lessons, until you are proficient in handling the rod and in controlling the line, and then start practising the real thing by the river. The lessons learnt in a school of casting provide a good foundation for the lessons a man, if he is observant, will teach himself when he starts to fish. Casting is most certainly not fishing ; but an angler with a grounding of what might be termed tournament-casting will soon be able to adapt himself to the particular kind of throw demanded by the occasion. If none of these advantages is to hand, recourse must be had to written instructions, a poor substitute at the best. And those offered here have been compiled with a full knowledge of the difficulty of describing in black and white the principles of casting, let alone the secrets and fine points of it.

For the purposes of this chapter, I have assumed you are fishing right-handed and are, therefore, standing on the left bank of the river. A current of moderate strength flows at your feet and there is little wind to prevent you getting and keeping full control of the line while it is in the air. You are imagined to have drawn off about eight or ten yards of line and to have worked it beyond the top ring and to have allowed it to come round and swing in the stream at full extension below you. This is the most favourable position at which to start the simplest form of cast.

Before giving a detailed description of this throw, I want to insist on the supreme importance of getting the line correctly extended behind the caster's back. Most beginners look and pay attention to the result of the forward stroke alone ; they judge the whole cast, in fact, by the way the line falls in the forward stroke ; and they employ twice as much force in the forward stroke as in the backward, whereas the reverse would produce a far better result.

When the line is properly extended behind, the caster will feel a little tug and the forward movement will begin at that moment, instead of it being delayed until all the slack line behind him has become taut.

As soon as the beginner has grasped some of the details of the action of the overhead cast, he should ask his instructor to watch his back-cast and tell him when the line goes too high or too low, whether the rod-point dithers and does not yield to the tug, or is taken too far back to allow of an efficient delivery of the line. If the rod-point is permitted to travel back beyond the normal plane, the line, in coming forward, will be thrown upwards into the air and allowed to fall in curves across the water ; this is an excellent cast, when it is desired to put a slack line across an intervening fast stickle. But it should be used only when the angler is proficient and perfectly capable of casting a long straight line.

I. Lift the rod-point with the suspicion of a jerk, which will raise the fly to the top of the water and will bring into play the middle joint of the rod. As soon as you are satisfied you can feel the weight of the line and that the line itself is following the lead of the rod-point, begin the upward stroke of the rod. There is no intentional deceleration of the motion of the rod after the jerk ; the whole action is really an effort to overcome *inertia*, to get a feel of the line and then to make it move upwards and backwards, smoothly but at an increasing pace. This jerk and the subsequent upward stroke are known as the ‘ recovery of the line,’ and it is part of the rod-makers’ job to see that the middle and butt joints of the rod are properly built to stand up to the strain of withdrawing a heavy line from the embrace of water that seems unwilling to let it go. I do not advocate the withdrawal in this manner of a large length of line ; it would be unfair on the rod. But more of this elsewhere (p. 141). We have left the line travelling back in obedience to the lifting of the rod and moving at an increasingly-greater speed towards its maximum point, which occurs when the tip of the rod is vertically over the right shoulder, or nearly so.

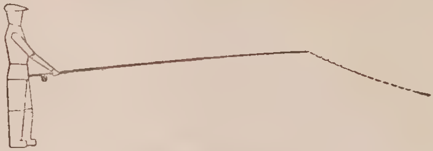


Fig. 43.
OVERHEAD CAST.
The start.

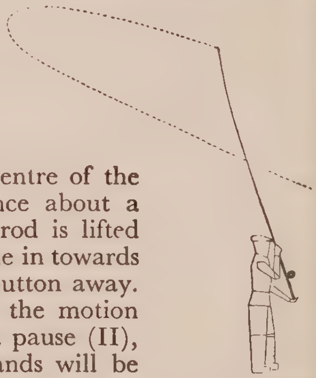


Fig. 44.
OVERHEAD CAST.
The line travelling backwards.

There are two distinct ways of lifting the rod, which are illustrated in figures 44 and 45. The former of the two is far less tiring and gives a slightly better result as regards the distance covered with the fly. The other, I think, is far easier to adapt to casting in awkward places ; but without the slightest hesitation I advise every learner to practise first of all that shown in the right-hand diagram.

In figure 44 the motive power is applied by working the rod almost as though the centre of the handle were able to rotate a short distance about a horizontal axis. The upper portion of the rod is lifted by the right hand pulling the top of the handle in towards the body and by the left hand pushing the button away. The right elbow should be extended as in the motion known in the army as the 'salute.' After a pause (II), about to be described, the action of the hands will be repeated in reverse. The right hand will push the rod away from the body and the left will perform the task of pulling in the lower end of the cork-grip. Throughout the whole process the hands have not been raised very much ; and the work has been performed by this see-saw action with the centre of the handle as the 'point of balance.'

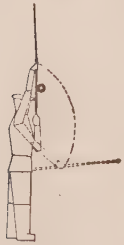
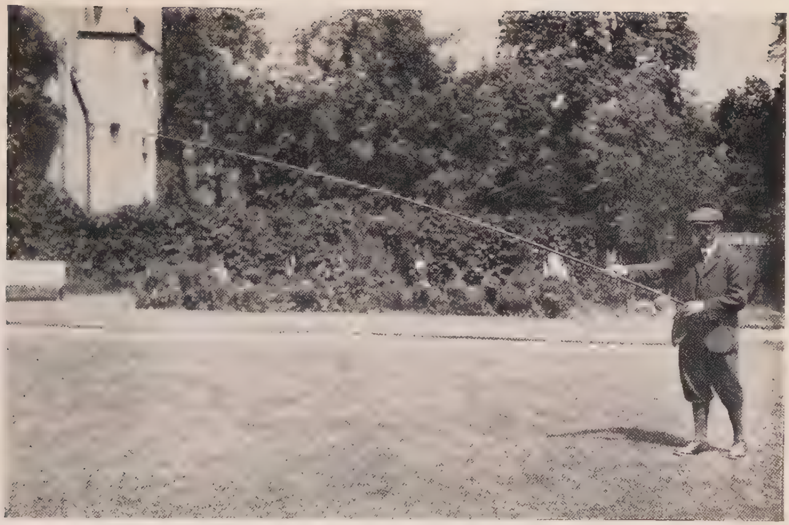
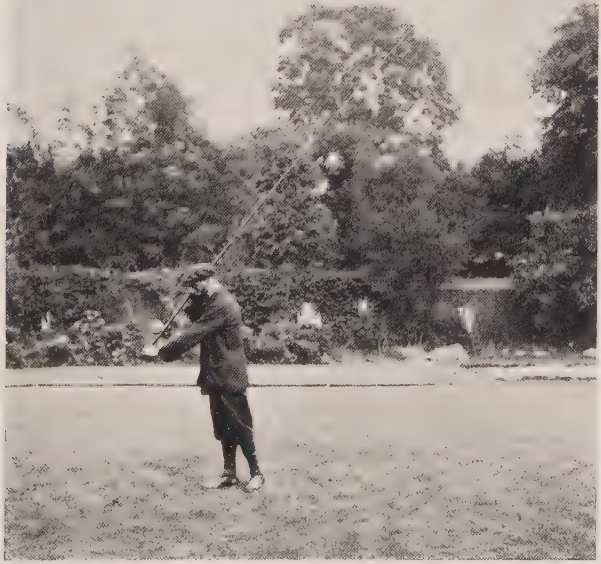


Fig. 45.
OVERHEAD CAST.
The alternative method of lifting the line.

The second and older method is to carry the line well behind the caster's back by a corresponding lifting of the rod and by a full upward extension of the right arm. A full day's fishing in this manner throws a great strain on the muscles along the right side of the body ; and it is doubtful whether as much finish can thus be given to the cast as with the newer style, especially when you are 'cutting-down' against the wind. In each method the function of the left hand is for the most part to steady the rod, while the right hand does the larger share of the work of propulsion ; in figure 44 it may be seen helping





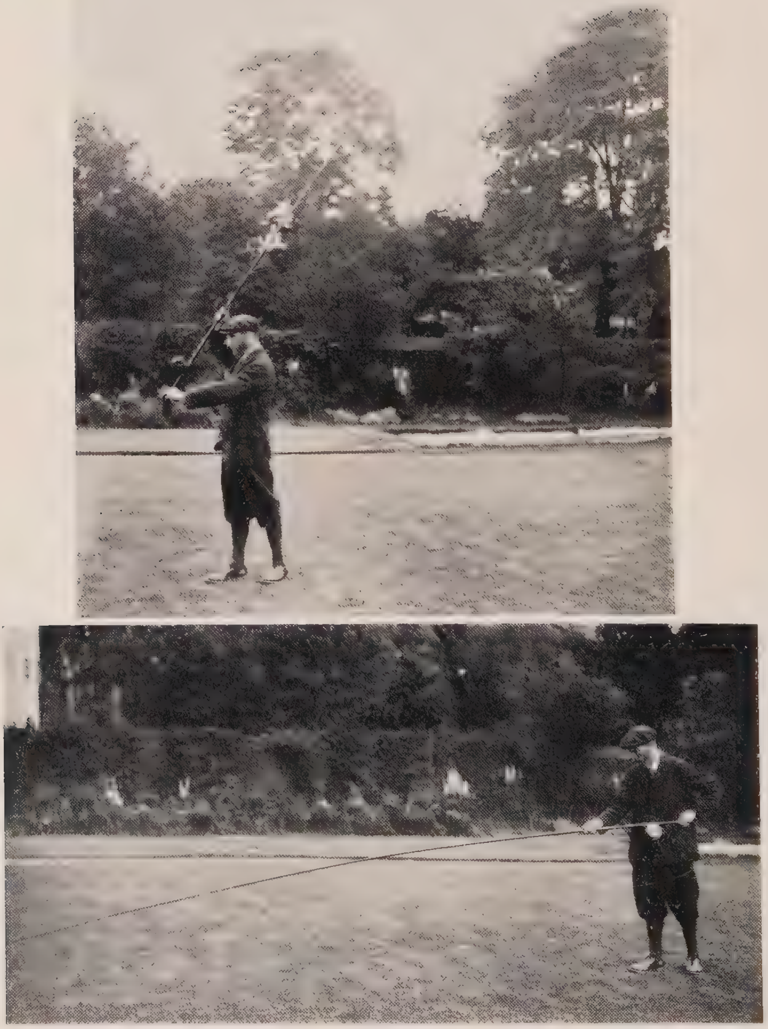
Plates 28 & 29

BEGINNING OF THE OVERHEAD CAST

(CF. FIG. 43.)

THE FINISH OF THE BACK-STROKE

NOTE THE METHOD OF MOVING THE ROD. THE UPPER HAND IS LIFTED ONLY AS HIGH AS THE EAR: AND THE MOVEMENT IS IMPARTED TO THE ROD BY THE SEE-SAW ACTION OF THE ARMS. (CF. FIG. 44.)



Plates 30 & 31

THE OVERHEAD CAST

TOP: THE FISHERMAN IS SHOWN IN THE POSITION OF WAITING AT THE LIMIT OF THE BACK-STROKE FOR THE TUG OF THE LINE THAT WILL TELL HIM TO BEGIN THE FORWARD STROKE, WHICH IS SHOWN COMPLETED UNDERNEATH. NOTE THE UPLIFTED ARM AND COMPARE IT WITH PLATE 29 AND FIGURE 45.

BOTTOM: THE FORWARD STROKE COMPLETED. (CF. FIG. 46.)

to pull and then to push one end of the 'lever'; in the other (fig. 45) the butt is supported by the palm of the hand and is held quite loosely by the edge of the thumb and a couple of fingers. The left hand should not be allowed to grip the handle more firmly than is done in the new way, in which the duty of the slightly-bent fingers is to pull and, afterwards, that of the thumb and forefinger is to push.

II. When the rod has been lifted with an *accelerando* motion as far as the perpendicular, it should be allowed to follow through, until it is at an angle of about twenty-two degrees from the vertical. This is done by letting the left hand and arm come forward from the shoulder about two inches. The line will continue travelling back to its proper extension behind and in a slightly-upward direction. The point of the rod bends back a little also in answer to the momentum that originally lifted it and was not quite exhausted at the time the remainder of the rod was checked in its backward path. The carrying of the rod back and the flexion of the top preserves a control of the line and should eliminate all dither and forward lash, provided the caster is not too rigid and not gripping the rod too tightly.

Also, he knows that when he feels the weight of the latter, the exact instant has arrived to begin the forward stroke. If the rod-point be in any way prevented from following the line backwards a few inches the whole rod would vibrate, the rhythm and power of the stroke would be lost and the line would fall in front of the caster in a tangled mess. If you feel the pull of the line as it flexes the pliant point of the rod, you know that so far you have played your part correctly, and that you have merely to carry through the forward stroke in continuation of the movement of the returning rod-point and make a reasonable finish to have completed a successful cast. Counting time to produce the feeling of the correct rhythm (which is identical with that in trout-fly casting) is much inferior to waiting for the pull of the line at its proper extension. Do not delay the forward stroke so long, that the fly and line will have dropped and possibly have become entangled in bush or tree behind you.

III. The forward propulsion of the line by the old method is achieved by bringing the right hand down and slightly in front of the body, so that the line is automatically thrown well out and straight forward. If the timing is correct and the line and rod are suited to each other, little more power is needed to put the fly neatly on the water.

If the forward stroke is delivered too early, you will probably hear a crack like that made by a whip, a sign that you should be sure the fly is still there, by watching for a tiny splash at the end of the cast as it meets the water. If you delay the forward cast too long, there will be a danger of catching some obstacle behind you; or, this risk avoided, you find you are apt to cast high in the air, so that the line falls in a heap just in front of your feet.

The forward stroke ought to be delivered from the position twenty-two degrees behind the vertical. It is a common fault to find beginners allowing the rod to creep forward a little before delivering the forward stroke. The inevitable result of this is a weak and uncontrolled throw.

There should, however, be a small degree of wrist-flick to make the cast extend itself fully; and, for long casting or if there is anything approaching a contrary wind, strength proportioned to the force of the latter must be put into the downward stroke of the rod. How much muscular force is needed under given circumstances will be learnt by experience.

In the other method the forward stroke is delivered by forcing out the right hand, which is gripping the upper portion of the handle, and pulling in with the left, as described above. The effect is much the same as that brought about by the old way, but it is far less tiring and it allows of much long casting against the wind.

The lifting of the hand in the back-stroke makes the old method very handy, when there is trouble in the form of bushes or low trees behind the caster's back, especially when he cannot use a Spey-cast or a switch, either of which would be preferable. An expert can, at will, cause a fly to ascend almost vertically in the back-cast, if he desires to clear some high obstacle behind him. It is often called the steeple-cast. Do not attempt this, until you feel you are proficient in the other throws. You will then achieve it by snatching the line off the water with an impetus, given at the start of the stroke instead of at the top. At the same time, the right hand is lifted instead of bringing it back towards the shoulder. The forward stroke must be initiated immediately the rod has reached its topmost limit and the direction of the throw must be outwards rather than downwards, if the cast is to be carried through correctly. If a pause is allowed, part of the line will drop below the rod-top and, when the stroke begins, this slack will have to be taken up before the true cast can start. This throw should be used only with a short line, otherwise there is great danger of breaking the rod.

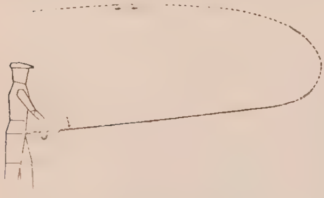


Fig. 46.

OVERHEAD CAST.

The line travelling forward.

The forward path of the fly ought always to be different from that which the fly was forced to follow by the back-stroke, otherwise there is a serious risk of the line and cast being mutually entangled in mid-air. Some anglers control the movements of the rod, so that the fly follows a path like a figure-of-eight ; some take the fly back over the shoulder and return it to the right of it ; others throw the fly outwards and bring it back over the right shoulder. It is of no moment how it is done, as long as the two paths do not coincide.

As soon as you are confident you can manage ten yards of line, draw off another yard at a time, until you have reached the length of which for the moment you are master. Measure this and make a note of it, so that, day by day, you can check your progress. Try always to cast very neatly and to get the fly first on to the water—a most difficult thing to do, but very useful in greased-line fishing. As a rule, you will do well to aim at a spot a little above the surface of the river ; this will assist very greatly in placing the line and fly on the water without undue disturbance. It is very common to see a man casting a line, so that it rolls along the surface, until it reaches its full extension, and then drops on to the water. This is a very untidy throw that may easily disturb fish lying in the vicinity ; equally, it may call their attention to the fly. That is not a definite statement ; but, if a line can be delivered in a more tidy manner, there is no earthly reason for taking the risk. If the trick of getting the fly in first can be cultivated, it will save you an immense amount of trouble when the time comes that, to avoid drag (see p. 243), belly must be kept out of the line.

When you can cast a short distance with the right hand leading, cross over to the right bank and begin throwing left-handed, before you find yourself acquiring a marked preference for fishing from an accustomed side. Form very early the habit of drawing in a short loop of line and of holding it with the lower hand in readiness to release it at the psychological moment, when the impetus of the line will carry the spare loop through the rings and the whole will be extended fully.

This is known as *shooting line* and is a handy method of casting rather more line than the rod will otherwise deal with in the air ; and also it helps by taking up the slack line that all good fishermen draw in before making a new throw. In long casting, it is too much to ask of a rod that it shall recover from the water all the line originally put out, especially as some of it is sure to be *drowned.* A couple of yards and sometimes as much as five are pulled in and held fast by the unemployed fingers of the lower hand ; this should be released at the precise moment in the forward stroke that can only be discovered by practice and experiment. It is hard to be much more definite than to characterize it as the instant, when the rod seems to give a kick and then straighten itself, and when the line can be felt pulling and straining to go yet further. A beginner must try this out for himself.

Cultivate the habit of holding a short length of slack line as soon as you begin learning to cast ; after a short period practise releasing it ; and, as soon as you hear the line going with a slap against the handle, you can be well satisfied with the timing. A great deal of the ease with which it is possible to *shoot line* is due to three main causes : the weight of the line, the alignment of the rings and their size and freeness from dirt or grease. It will be found far more difficult to shoot line with a two-handed rod than with a single-handed one. You will experience this, if you use alternatively one hand and then two in controlling a twelve-foot rod. The secret is to prevent the top joint from bending unduly, so that the extra line is thrown across the water, instead of down at it. Also, the rings will be forced out of their *vertical* alignment and smooth egress will be denied to the line.

When there is strong downstream wind, casting over the right shoulder can be really dangerous. It is better to take the rod back over the left shoulder or to cast left-handed and put the line well inland, so that it cannot be driven by the wind at your head. As soon, therefore, as you hear the fly whistling uncomfortably near your head, you should adopt one of these methods and make use of the wind to a certain extent. If a tree or some other obstacle prevents this, you will have to employ the double Spey-cast, described on page 147.

In places where overhanging branches, fallen trees that have floated down and have lodged in the way of the recovery of the fly for the Spey-cast, or a lack of the right current to hold up the fly, all combine to present the luckless angler with abstruse problems, many times the way out will be found to lie in the use of two throws, where normally one would have been enough. First of all, a false cast is made with a shortened line in some convenient direction from which it is comparatively simple to cast again in the right direction and to *shoot* the line at the right time. How many times this tactic has won me a fish from dense jungle-like places, where, by the usual methods, I should have gone home without ever having got a fly properly over the lodge and only having lost several flies in attempting it! This method of double-casting is adapted to another purpose, namely, ensuring the straightness of a cast, in greased-line fishing (see p. 242). And in the same chapter is described the *mending* of the cast or *lifting over.*

There is a variation of the overhead cast often employed in a pool, where the backward cast is checkmated by high trees and where it is quite easy to throw the line upstream clear of the promontory formed by overhanging bushes. The rod is taken back along an almost horizontal path and in the forward stroke is manœuvred, so that the fly is projected outwards over the water at an angle of roughly forty-five degrees. Considerable effort has to be made to force the fly in its backward path to go outwards and clear of the bushes.

It is often more convenient to bring the fly near to the surface by the manœuvre, called by Mr G. E. M. Skues *picking it off*, than by drawing in line with the lower hand. The rod is raised and then lowered with a sweep that causes the line to belly upwards and drag the cast and fly up from the plane to which it has sunk. The line can then be recovered with far less effort and without any fear of straining the rod.

§ 3. *The switch.*

The movements of the rod when you are making a switch are very like those appropriate to the Spey-cast. But the results of the two throws are quite different. The former rolls the line back, so to speak, in a plane lying at a small angle with that of the line, as it was being recovered; by means of the second it is possible to cast a far longer line, to throw it above the surface and at a wide angle, which will place the fly well across the river. The occasions on which the switch is useful are few in salmon-fishing, because it is rare the Spey-throw cannot be called in to the rescue of a tree-beset angler, although it is used frequently to clear the line and to extend it, after it has been brought in, to examine the point of the hook or to remove impaled leaves or flannel-weed. If there is a tree behind and a bastion of a bridge to the right (I can see the place now!), switching has an advantage over the other method, as the fly need not be taken upstream of your outer shoulder, that is the one next the stream. Whereas, in the Spey-cast, room is wanted a little upstream for the fly to drop, before it is swept across and forward. I have known awkward stances, where limbs of trees and other such handicaps would not permit the rod to be taken back, sideways and round in the Spey-throw, and yet did not inhibit the use of a switch. How to cast on any given occasion is just a matter of experience and of knowing your own powers.

This is the way to make a plain switch; although everyone, at times, adapts the cast to fit the circumstances and therefore employs the hundred and one different variations that exist between the orthodox switch and the Spey-cast. The rod-point is lowered, until the line is held taut by the current, is then raised to the vertical and allowed to go a little beyond it and slightly to right or stream-side of you. The line will follow the point back in a deeply-sagging belly and the fly will remain in the water, but near the surface. The rod is then brought forward and slightly outwards, so that the backward and forward paths of the line cross at an acute angle; and, if the rhythm has been maintained, there should be no risk of two parts of the line getting foul of one another. The line near the tip of the rod, on going forward, will do so in a roll, will pick up the remainder of the line and will impart to it impetus enough to cause it to extend itself in the new direction. The essential to success is an absence of pause from beginning to end, save for one instant just before the rod comes forward. The rhythm is necessarily accented, because there should be slight acceleration on the upward path and a decided finish to the forward stroke.

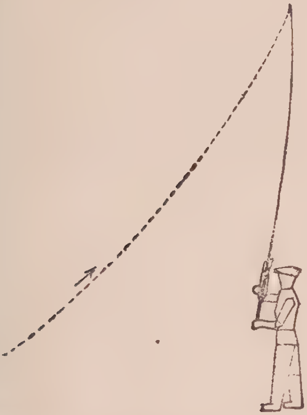


Fig. 47.
READY TO BEGIN THE SWITCH.

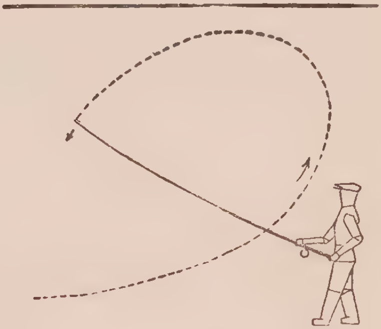
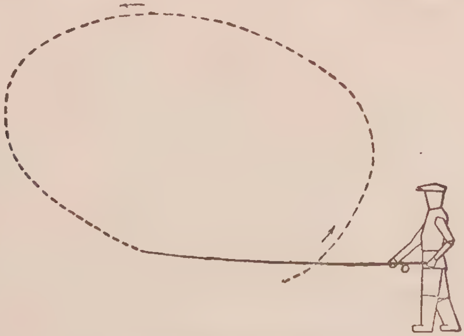


Fig. 48.
HALF-WAY THROUGH THE DOWNWARD CUT.



THE FINISH OF THE SWITCH. Fig. 49

When switching with a two-handed rod, you can, if you wish, keep the leading hand quite low; and the rod-point may also be taken back along a lowered path, if branches or the arch of a bridge make it impossible for the rod to be lifted vertically. As I said above, there are endless ways of presenting a fly to a fish, or rather the ways are only limited in number by the amount of ingenuity displayed by the angler in overcoming difficulties. And that is more than half the joy of fishing.

§ 4. *The Spey-cast.*

This cast is really the same as a switch done sideways. The difference lies in attempting to place the fly outwards, over the river, instead of returning it to the same plane; also there is far more power put into the forward stroke, so that the fly and the line may clear the rod, when the last-named is brought downwards in the new plane, viz. outwards and across the river.

Of all casts this is by far the most difficult to describe. It has been attempted several times without much success; and these notes and diagrams are offered in the hope they will make more intelligible the teaching of an expert by the river, for that is certainly the only way to learn how to do the Spey or Welsh throw. The analysis of the actions of the cast are not intended to supplant the instructions of the experienced caster, but are meant as a grounding in the principles that will relieve him of elementary explanations and will make his teaching the more valuable.

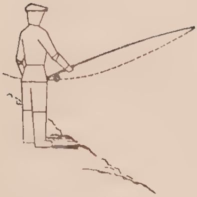


Fig. 50.

THE SINGLE SPEY

The line extended downstream.

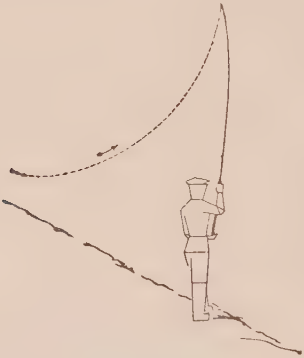


Fig. 51.

THE SINGLE SPEY.

The rod in the vertical position.

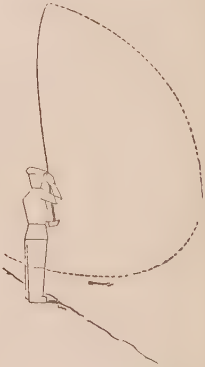


Fig. 52.

THE SINGLE SPEY.

The line travelling upstream.

Imagine there are behind and a few yards above you trees, bushes, or other such obstacles that in the ordinary way would constitute almost insuperable difficulties, if you employed the overhead cast. For even if you were able to throw the line sideways upstream, you would find it no light task to place the fly across the water at the desired angle. It remains, therefore, to use either the Spey-cast or the Switch. Let us also imagine there is flowing at our feet a moderate current, which will make it possible to get the full extension of the line and to ensure the fly being near to the surface. The latter is a most important factor in the successful achievement of the Spey-cast; and lack of an adequate flow of water, from which the fly may be easily picked out, will make this throw most difficult and sometimes out of the question.

The first thing to settle is where you wish to place the fly and then to turn your body towards it. Let the inland foot be slightly advanced. Then lower the point of the rod, so that the distance travelling by it in being raised may be as great as possible and the maximum impetus imparted to the line.

As soon as the line is well extended downstream, place your left hand under the rubber button, so that, when the rod is in the upright position, it shall rest on the open palm. The right hand, which is to do most of the work, is to maintain a moderate grip on the upper portion of the cork-handle.

Then start lifting the rod into a nearly-vertical position, accelerating slightly to maintain the *pull* of the line at a constant strength. The line will at first follow in a downward-curving belly and the fly will be drawn to the surface and follow without actually losing touch with the water. When the rod has arrived at a vertical position, incline it outwards and a little downwards, so that the belly receives a twitch that will cause an upward humping and the fly to leave the water and to travel just upstream and close beside the caster. Describe with the tip of the rod an ovoid path, the return portion of which comes back over the right shoulder and proceed outwards and across to the spot aimed at.

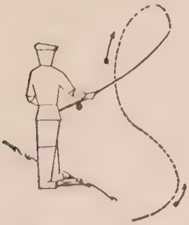


Fig. 53.

THE SINGLE SPEY.

The downward finish.

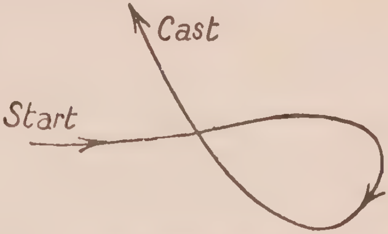


Fig. 54.

THE SINGLE SPEY.

The track of the rod-point seen from above.

The outward inclination of the rod is made with the object of giving time to the fly to reach a position just upstream of the angler. From there the line and fly can be propelled across the stream without getting entangled; and the fouling of the line is a frequent danger against which you ought to guard most assiduously. You must satisfy yourself the fly is either opposite or above you, before making the cast, otherwise the hook will most likely take a firm hold in some part of your body, probably the ear. If the fly is not in this position, the line should be cleared downstream with a switch and the motions of the cast should be repeated.

As soon as the line is travelling in the desired direction, you can safely add the cut-down finish to the throw, that is, bring the rod down rather smartly with a flick of the wrist to a position a little higher than the horizontal. But, although the rod should be permitted to 'follow through,' the body ought to be consciously held back.

It is a very common fault in those accustomed to overhead casting to raise the arms as high as they naturally would in that cast; but in

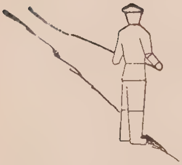


Fig. 55.

The line extended downstream.

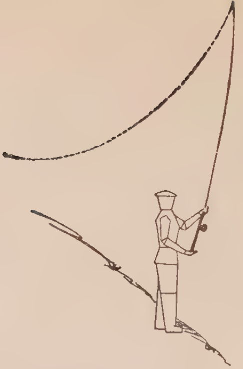


Fig. 56.

The rod coming to the vertical. The line following upstream.

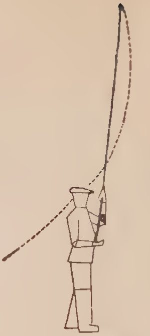


Fig. 57.

The rod vertical. The line travelling upstream.

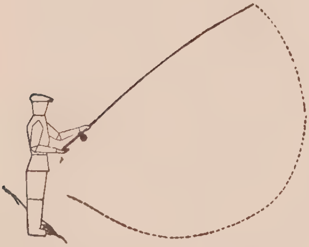


Fig. 58.

The rod over the stream but about to come back. The line still travelling upstream.

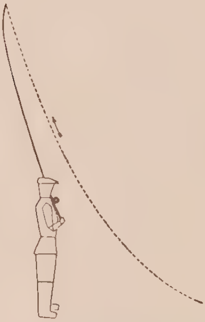


Fig. 59.

The rod back over the bank. The line following it.

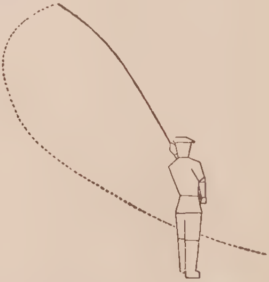


Fig. 60.

The line coming back under the rod which is at the extreme left of the circular movement.

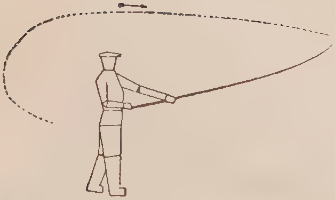


Fig. 61.

The final cast in the direction required.

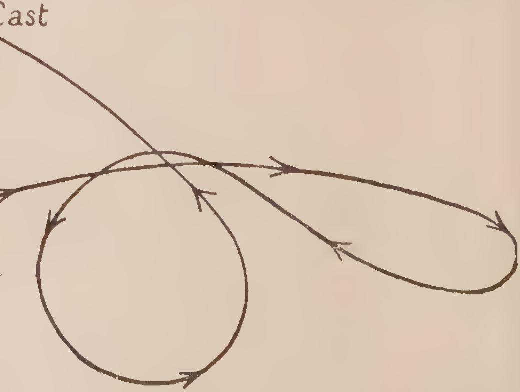


Fig. 61a.

The track of the rod-point seen from above during the double Spey-cast.

THE DOUBLE SPEY-CAST.

Spey-casting, double or single, the upper hand should not be lifted higher than the ear.

The essential part of a really good throw is the maintenance of the rod's motion throughout. There should be absolute smoothness without the suspicion of a pause or a jerk ; but the two conditions precedent are : the use of a suitable rod, limber, rather heavy in the middle and joined by splices, and of a line of a weight adapted to Spey-casting, namely, one that has a steep taper and a moderately heavy middle. Without this type of line you will find, in throwing against even a light breeze, that the fly will be projected in the right direction, but will fall short ; and possibly both it and the cast will be doubled back.

Both kinds of Spey-casts are apt to throw the line on the water before the fly and also to disturb the pool unduly. You ought to try and cast at a point a yard or even more above the place at which you are aiming, which may have the effect of reducing these disadvantages.

§ 5. *The double Spey-cast.*

When a strong downstream wind is blowing, it is dangerous to employ the ordinary Spey-cast, as the fly is carried against the angler's person when it is being propelled across stream by the downward cut of the rod. If only his cap is hooked he is lucky ! The double Spey-throw has, accordingly, been devised, which gives the angler the power of casting a fly under these disadvantageous conditions and of casting it, if anything, often too straight across.

If you wish to use this cast and are still fishing from the left bank, you must place the left hand uppermost on the rod and the right hand underneath the button. The left hand will do the work of guiding, controlling and propelling. As soon as the line is well below you, raise the rod exactly in the manner of the single throw, except that the rod-point comes round to the vertical, having followed an outward path. When there is a long line out, the rod should be brought into a plane much beyond the vertical and the hands and the elbows should be crossed, left over right.

It is then taken across to the left side and inland of the body and brought round to pass over the left shoulder until it is opposite the spot to which the fly is to be thrown. The rod is then brought smartly down and the body is again held back. The diagrams will explain the path of the rod-point far more lucidly than the most careful description in words could ever hope to achieve. It is worth noting that the fly never travels in the air above the caster ; and that it touches the water just below and close to his left side, instead of just above him. The danger of his being hooked, therefore, does not exist. In this cast also the movements ought to be continuous with slight accentation, as the point reaches the vertical positions over the right and over the left shoulders and in the finish.

If there is a really strong gale blowing downstream, which is making it an impossible task to extend the line behind in the overhead cast, a double Spey-cast, employed very indifferently, is infinitely better than the former, provided the angler can carry out properly the final movement of the cast.

In making the overhead cast the importance of feeling the *tug* or *pull* of the line on the rod-point was insisted upon. The essence of all forms of underhand casts, switch and both Spey-casts among them, is that the *tug* shall proceed from the line being held down by the water. The shorter the line to be thrown, the longer ought the caster to postpone the forward stroke, always long enough to allow the fly to sink a little in the water close to him and thus get firmly enough anchored to give the *tug*. This is of prime importance. I have mentioned it in the last paragraph of the chapter, in order to emphasize it.

CHAPTER FOURTEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY

§ 1. *Historical.*

THE practice of salmon-fishing is changing. It is changing by enlargement of its scope and application. Its vitality is being renewed and expanded through contact with the young and progressive minds of a new country. I refer to the work of Mr La Branche and that of Mr Hewitt ; while others in Britain, notably Mr Wood on the Aberdeenshire Dee, are also experimenting with novel methods of presenting the fly ; and this rebirth had long been overdue. Indeed, before the movement started, salmon-fishing might without exaggeration have been said to be in the middle ages of the art and to have advanced little, if at all, during the last hundred years, many improvements in tackle notwithstanding. If the reader should doubt the truth of this, let him turn to pages 60, 61 and 358 of the present book and see for himself documentary evidence of the earliest mention of the old-established methods of fishing, methods which are perfectly sound to-day, and which can be made yet more valuable to the fisherman, if they are viewed from fresh angles with a modern eye. As Mr Hewitt (*Secrets of the Salmon*, p. 113) says of nymph-fishing, ' it is the point of view and not the essential difference in the tackle ' that really matters.

It is a very fruitful practice to read history comparatively, that is, for example, to read in parallel the histories of England, France, Spain, The Holy Roman Empire etc., and to discover how far every one of these at any convenient date had progressed along the road of civilization. Apply this method to the art and practice of salmon-fishing and to those of trout-fishing and, in order to get a parallel in European history, comparison would have to be made of Southern Britain at the time of the Roman invasion with the well-ordered and progressive Rome of Julius Cæsar's day. Perhaps this may appear to be an overstatement of the difference between the stages at which each of two branches of fly-fishing had arrived ; but let us consider how the position really stood.

Before the recent establishment of greased-line fishing (p. 240), dry-fly fishing and very fine low-water fishing for salmon, the accepted method of fly-fishing for salmon was one which demanded a river flowing at a minimum level, an equipment suitable for these conditions, that is, all the heavy wet-fly tackle still thought by many to be essential to the sport, and a fair knowledge of where fish might reasonably be expected to lie and to take. In trout-fishing terms, it was wet-fly fishing downstream and largely ' chuck-and-chance-it,' or ' fishing the water.' Salmon-angling was in the position relative to that in which trout-fishing lay in the early decades of the nineteenth century, one of acute transition that threw its black shadow far up the later years of that century ; and, strange to say, that branch of fishing also was at the time only just recovering from a prolonged period, fallow of new tactical ideas but full with a crop of new inventions in tackle. I imagine that the improvement in fishing-gear had in both periods so augmented man's advantage over his quarry, that he had temporarily lost the incentive to discover for himself new and more subtle methods of presenting the fly or bait. The mechanics of fishing triumphed. The weight and power of the salmon might be expected to lead to such a position, since the great tensile strength of good gut and the deadliness of fine tackle, when used in the proper circumstances, in forcing a salmon to exhaust itself is knowledge acquired in recent years.

'Now lastly touching the angling for the *Salmon*,' says Gervase Markham in 1614, 'albe he is a *Fish* which in truth is unfit for your travell, both because he is too large, and cumbersome. . . .' For the succeeding two and a half, I might almost say three, centuries anglers were obsessed with the weight and strength of the salmon and speak of its capture with awe in their voice. But *Ephemera* on page fifty-three of his *Book of the Salmon* lays down the contrary and more reasonable opinion that 'many a trout fly-fisher is deterred from fishing for salmon by the accounts—the highly exaggerated accounts—he has heard of the strength and agility of that fish.' He goes on to say that he thinks it is often more difficult to kill a three-pound trout on proper fly-tackle than a salmon on the stout rod and tackle then in general use. *Ephemera* stands by himself in this opinion, since the writers of his day are on the whole very much impressed by the power of the salmon and the difficulties attending its capture. Compare with the opinion of *Ephemera* those of two well-known writers of their day. First, there is Sir Humphry Davy (*Salmonia*, p. 107), 'But I see there is a large fish that has risen at the tail of the pool. I think he is fresh run from the sea, for the tide is coming in. My fly and tackle are almost too fine for so large a fish, and I will put on my first fly with a very strong single gut link and a stretcher of single gut.' Again there is Webster who, as late as 1885, wrote on page 264 of *The Angler and the Loop-Rod*, 'for as the prize is great, so are the risks involved.'

To-day we are adequately supplied with the mechanical aids to the sport and are diligently searching all the avenues which these and new discoveries, such as the importance of 'flash' (see Dr Francis Ward's *Animal Life under Water*), have opened up to us. Add to these thoughts the realization that we have yet to learn the true meaning of a salmon-fly (p. 229), and we can begin a discussion on the accepted practice of wet-fly fishing for salmon as distinct from the new methods, which are treated in separate chapters.

§ 2. *Assorted ideas.*

The best way to learn salmon-fishing is to make every mistake as early in one's career as possible and to make any one of them only once (or shall we say the fewest number of times !). A short account of the capture of my first salmon will give some sort of idea of the state of innocence in which it is quite easy for a trout-fisherman to find himself, when he begins angling for salmon.

It was in the early days of August and the river, I had been told, was in good order. My friend, the late William Mieze, to whom I owe besides many other things my initiation into the art of salmon-fishing, and I went down by the early train to the next station lower down the river, which was close to the best pool on the stretch we had permission to fish. There we found a somewhat weary and disillusioned angler who had been flogging the pool since half-past five that morning. Mieze unselfishly sent me in at the head of the run and, after two or three casts, I found my fly securely fast in a bough halfway up an overhanging elm. The others courteously waited while I scrambled up the tree, released the fly and returned to continue fishing down the pool, over which I was casting abominably, covering barely half of it. In a minute or so I was again fast, but this time in what seemed at first to be a snag in the river. Not a tail had stirred, not a fin or a nose had broken the surface, so that it took me some time to realize that I had been fairly and securely hooked by a salmon, which had then proceeded to play me. Providentially the check-pawl of the reel chose that particular moment to come adrift from the cog-wheel, which brought me to my senses and made me realize that I should have to use all the ingenuity I could summon, if I was to succeed in playing the fish by hand.

When all was over and I had tasted to the full the thrills of landing the first salmon, I attributed my success after the other's failure to the gift of phenomenal luck, the unbroken run of which I was to enjoy so long as I was fishing for salmon. Unfortunately my luck held throughout the rest of the season, so that I finished my salmon-fishing for the year, little wiser than when I began it, because, as I now believe, I knew too little to make the mistakes that really matter. Looking back on those days it is clear that the reason why the early bird, so to speak, did not get that worm was that the late-comer cast so badly and fished in so untutored a fashion, that he fished the fly on a slack line, which allowed the former to behave most attractively in obedience to the currents and local eddies.

One piece of advice, however, I did succeed that year in proving true : a salmon that has risen at, but refused, a fly should be offered one smaller in size. It was on the very next day but in an upper pool. An angler who was sitting beside me said that he was sure a salmon had shown the tip of its nose close to my fly. I was as yet far too ignorant of the game to know the need to watch the water vertically above the place where the fly is judged to be. He advised me to put on a smaller fly ; this I did and was rewarded by a strong pull from deep under water. The eighteen-foot rod and the stoutest *telerana* (pp. 124, 125) I ever met fairly brought that nineteen pounder out standing on its tail. I realize now that the fish had been hooked extremely well without my having been conscious of tightening on it ; but at the time this did not strike me as in any way significant. The foregoing paragraphs show the way in which, if he has the wit to recognize and profit by the hints given him, a salmon-fisher may learn his trade.

§ 3. *Of truths and superstitions.*

'Ye need na fash yersel the day wi' yer lang wand, for I wud na gie a pinch o' snuff for a' that ye'll get ; there are too many pouthered lawyrs aboot,' quoted Scrope (*Days and Nights of Salmon Fishing in the Tweed*) ; and this may be quite true. Yet I doubt whether this opinion had any solid foundation. There are many of these superstitions which pass as laws of salmon-fishing and very often they are purely of local origin. One ancient salmon-angler will solemnly say that his river is an east-wind river or that the fish will not take well when there is a strong west or downstream wind. Another will not trouble to fish when 'it is washing-day in the mountains' and the chill edges of the clouds are rolling along or clinging to the lower slopes of the valley. Thunder-weather, of course, makes it quite hopeless to expect a fish, says another. This is nonsense. The opening *rafale* of the worst thunderstorm I have ever experienced in Europe found me fast in a salmon and I have never been more thankful, when the hook came adrift and I could conscientiously say I had not run away from the danger. But the most remarkable feature was the extraordinary way in which all the salmon in the stretch continued to show during the first ten minutes of the storm ; it was like a trout-rise to the blue-winged olive, but on a gigantic scale, and it proved how utterly I had misjudged the number of salmon lying in that length of the river.

This superstition-business, this laying-down of laws for the salmon to obey, is infectious. Of course, you may stumble upon a great truth, a truth that holds good for any river where Atlantic salmon abound. The angler should, therefore, store away all these impressions, or, better still, write down an accurate description of them and of all likely and unlikely attendant circumstances, so that the event can be reconstructed in after-years. Here are two observations I keep by me and put to the test on every possible occasion.

When the river comes down after a spate, foam-flecked and with bergs of white and yellow foam floating down at odd intervals, I am always very sceptical of the day's fishing and up to the present I have failed to take any fish under those conditions nor have I known others do so. Again, I had for years failed to raise a fish, when the river I know best was coming down stained with peat with a faint but unmistakable bluish tinge within its depths ; but this season I took a salmon on peat-water, which proves there can be exceptions to what I had imagined to be a local rule.

Every fisherman has surely noticed, from time to time, a sudden change in air-temperature, a warmth which to the salmon-angler so frequently means good sport, that it absolutely restores lost confidence, even at the end of a dull, cold and lifeless day, when it very often occurs. This natural phenomenon is a good augury upon which the angler may safely depend. Weariness, trains and hunger notwithstanding, the salmon-angler ought never to allow the golden opportunity to slip by ; it so frequently means the most glorious sport of the season (see p. 240).

Also I have discovered that rapid alterations in the level of the water, up one day and down the next, synchronize with an unwillingness on the part of the salmon to take any form of bait. There may be some connection, for salmon object to being unsettled and are extraordinarily sensitive to minute changes in water-pressure (which is the equivalent of water-level viewed from another angle).

Water-temperature also affects them, in that they are said to take a bait indifferently when this temperature varies considerably from day to day (see p. 46). One effect of very cold water in the spring is quite certain, namely, that running fish refuse to face it, but make their way extremely slowly upstream or wait in slack water in the lower parts of the river, until the snow water is out of it. It is also very noticeable that spring fish rarely show in the pools, and so infrequently do they jump, that the angler is almost tempted to suppose the earliest arrivals from the sea are yet below his stretch of the river.

What has been said in the foregoing paragraphs on the subject of when and why a salmon will or will not take a bait might fruitfully be summarized thus. We have yet to discover the true meaning of a salmon-fly ; but, if anglers would adopt a different attitude to the sport as a whole and take advantage of the new methods, I believe this question would be far less acute.

Can salmon be frightened ? Do they mind the appearance of man upon the river-bank ? The evidence from various rivers is very conflicting. My experience has made me think they can be frightened. But I cannot believe they associate the angler, his rod, line, flies, or baits with danger to themselves. The trout possibly does ; but the salmon is a migratory fish ! Here is an example of salmon being frightened. I can see now in my mind's eye two Dart salmon that had very good reason to be afraid ; and scared stiff they were, metaphorically and physically. It was dead-low water at the time and during the working hours of the blanket-factory the leat drained part of the river of much of its depth. The bailiff therefore decided it would be more healthy for the fish of that stretch and less of a temptation for the local poachers, if the former were given a lift over the weir at which the mill-leat branched off from the main. Accordingly he and I, an observer and interested helper, set to work to chase the fish up into the top pool, so that we could net or tail them. As soon as we had driven them up, we placed a stop-net across a stickle and set to work transporting them to the upper water.

When this had been accomplished, the bailiff told me he had counted still two more the previous night and he was convinced these must be somewhere in the stretch. It was a full quarter of an hour before we discovered the truants. They had successfully hidden themselves by curling round inside a groove cut by the current in the rock and they were lying there in a state of absolute terror ; nor would they move until I pushed them out with a branch. Imagine my astonishment, when the salmon had swum away in a dazed condition, to find all the time a two-pound seatrout had been taking cover underneath them ! The Dart was, that April, on the low side and very clear, so that I had other opportunities of observing the manner in which a salmon can be frightened, and I have since had a wholesome respect of its ability to look after itself.

A most definite example of a salmon being scared was seen by Florence Mary, who was standing on the road above the pool I was fishing, the long clear shallow pool above Dart Bridge at Buckfastleigh. We had spotted the fish of the year, described by the bailiff as having ' a tail like a shovel.' The sun was shining, at the time I went into the pool and began by casting up to the fish a seatrout fly, fastened to a seatrout cast of fine gut, but, as I believe it proved, hardly fine enough. The outpost on the bank above kept me supplied with information of the direction in which I ought to cast. ' It came to have a look that time,' I heard ; ' cast again in the same place.' I did and unfortunately jerked the fly rather badly, as I was gathering in the slack. Afterwards I learnt that the salmon, which was following but an inch behind the fly, promptly vanished into the dark places of the pool. The flash of the gut or the unexpected dart forward of the fly, which was it ? I believe it was both, but mostly the fault of the gut.

We were very lucky to have had such an experience, for generally salmon are much less frequently seen, when they are in the water, than are trout, which probably accounts for an angler not realizing how often he, his rod, the thick shadow of the gut, or its flash has scared a fish he imagined he was still covering with the fly. Scrupulous attention to these vital points will help him to reduce the number of hours when the salmon are said to be sleeping ; although salmon can scarcely be expected to be in a taking mood all the time. Every fish has its periods of rest and even the pike is, at times, tempted in vain with the most delectable bait.

§ 4. *Concerning the height of a river.*

Every river that fortune or goodwill has allowed me to fish I have found to possess certain marks sacred to those anglers who live by the banks of or who are able to fish regularly their favourite streams. A mark in this sense may be a stone, a tree-trunk, or the end of a wall that projects into the water ; or it may take the form of a change in the direction of the current ; but all of them have the same function, namely to tell the fisherman the height of the river or, viewed in the other way, to indicate where salmon are likely to take and roughly what size of fly to use. A mark may also denote the position of a ' catch ' or particular spot on the bank of a pool from which to cast. The most accurate kind is the water-gauge, an example of which is to be seen in front of Spey Bridge near Grantown ; this in a cold unsympathetic way will tell the angler the exact height of the water in feet and inches. Without an accurate gauge, however, it is impossible to conduct investigations of real value into the relation of the temperature and height of water with the willingness of salmon to take a fly (see p. 240).

At the moment I have in mind the kind of mark that tells me what size of fly to tie on ; such is the ' salmon-stone ' in front of Carrog Bridge on the Welsh Dee. When the river is running high enough to cover the stone, but clear enough for me to see the top of it through the water, I know from experience there is a good chance of a fish, if I use a large fly (3/0, 2/0) in the edges or cheeks of the main current and in the resting-places used by travelling salmon. When the river has dropped, so that the top of the stone is showing above the water, I know 2/0 is the size of fly to put up and only certain pools, the high-water pools, are worth while fishing. When about three inches of the stone is showing above the surface of the water, I know a no. 1 or no. 2 fly is, according to whether the water I am fishing is broken or is solid current, the largest I can use with any hope of success ; and so on until the level of the water on the stone tells me which pools are still in ply and which have too little stream in them for ordinary wet-fly fishing. During my first visit to the Dart, I was told a long deep pool did not fish properly, until the main current at a certain point deserted its central course and, striking diagonally across the river, hit the bank close to a low overhanging bush. I recall other examples from the first-mentioned river : the pool that was only worth fishing when the first of a group of stones put out its head from the water and was of little value when the whole group had appeared ; and also the long shelving pool with a pronounced shingle-beach, by the width of which I could judge with considerable accuracy the right size of fly to employ.

It is clear, therefore, that the level at which a river runs and the quality (as well as the colour) of the water are matters closely bound up with success and failure in salmon-fishing. Equally important is it for the angler to observe the rising and the falling of a river, so that, from the outset, every opportunity should be taken of forming the habit of noticing them. Further, these marks tell a man who is familiar with the river, where it is safe to wade and whether he may at any point attempt to cross to the other bank (see p. 208).

The foregoing refers to a stream, swollen with rain and definitely known to be above its normal height for the time of year ; it often happens, though, that a river begins to rise as one is fishing and it is part of a salmon-angler's education to learn how to spot it, since the finest of sport may often be obtained during the first half-hour of the rise in water-level. But afterwards, during the rise and until the river has settled down to a steady height, fishing is likely to be unproductive. It is quite easy to cultivate a habit of watching the river for signs of rising or falling, until this branch of watermanship becomes instinctive.

Here are a few hints that will make it easier to keep a check on the level of the river. As soon as you reach a pool, take particular note of the margin of the water and see whether the edge of the water, where it embraces a small pebble, appears to have shrunk back within itself, forming a tiny wave that has failed to roll forward and has expended part of its energy in swelling upwards, until its top is almost convex ; this is a sure sign of rising water (see p. 24). Scrope evidently saw this happening on the Tweed, for he quotes on page 98, *Days and Nights*, the remark 'for the storm cam from the wast last nigcht ye ken, and she wull be waxing the morn ; but we can gang doon to her and see.' His comment is, 'all this was a mystery to me at that time ; but I learned from him that when the river is about to flood, the rain that has fallen near its sources comes pouring down from the gullies and drains, and propels the clear water before it, which then climbs the dry stones of the channel, exhibiting a convex surface, like wine in a glass filled to the brim. This effect cannot be perceived where the river is in quick motion ; but in the little bays and pools that are here and there in the channel.'

A rise in water after a prolonged drought is well marked on the shingle of a pool, as the river will be flowing over a strip of bleached stones which, a day or two before, were lying naked under the sun. As the river clears, you will see deposited on these stones fine brown *detritus*, brought down by every flood, as part of the process of denudation and rebuilding. And, if you are curious enough to look under some of these stones, you will be surprised at the way the long-barren area has received back again its population, caddis and loaches predominant among them.

If, however, you fail to find any direct evidence of a rise in the water, make a mental note of the height of the river, using as your mark a stone, a submerged limb of a tree, or some other convenient object ; or force a stick into the bed of the river or within the fissure between two stones, until the notch cut in its bark is level with the surface of the water. Care should be taken to select a mark sheltered from any waves that might be raised by the wind, as their action would soon destroy all the value of the stone or stick as a water-gauge. It is extraordinary how simple all this is in practice and how useful are the results, both on the actual day and for purposes of comparison afterwards. Every fisherman ought to make a habit of marking the height of the water at a certain point, so that he may keep in touch with the river from day to day and judge the size of fly to use and where fish will probably be lying.

Very often one can distinctly feel the water, when it rises rapidly, creeping up the waders and, if trout have previously been taking the natural fly freely, it is quite certain they will suddenly leave off feeding. I have vivid recollections of this happening at the beginning of one of the most violent changes of river-level I have ever witnessed. I had waded out to a shallow part of a pool surrounded by deep water ; the water started to rise and, before I had made my way to safety, a bare inch of my trouser-waders remained between me and a soaking. In half an hour the placid stream was a raging torrent. The way in which a river like the Wharfe will come down in sudden spate, carrying all before it, is well known. The water comes down in a wall as solid as the bore or ‘ eagre,’ which, sweeping up the Trent, denotes the return of *Aegir*, the ancient god of the Norseman, to his Mercian dominions. One is prepared for that emergency after a cloud-burst on the moors ; but the stealthy and silent rising of a great salmon-river is just as dangerous to an angler, who has incautiously adventured himself upon a ‘ whaleback ’ surrounded by deep water.

As soon as the water has risen to a considerable extent, quantities of flotsam will be found bobbing along the river-margin ; when, however, the river starts to drop, the flotsam will be drawn near to the edge and be left behind by the receding water, forming a narrow band to mark the limit of the flood’s invasion (see p. 24). The height of a river will remain near to its peak, for a greater length of time than it otherwise would, if there is near to the river’s source a lake that acts as a reservoir and holds back a part of the heavy surface-drainage of the upper basin. If, during the days succeeding the spate, there is a strong wind in a direction contrary to that in which the stream is flowing, the storing-power of the lake is considerably increased and the river will run for some time at an even level and then drop very slowly ; this is a very happy arrangement both for the salmon and for the angler. The fish find good and dependable ‘ running-water,’ which gives them every chance to distribute themselves evenly over a wide stretch of the river ; and it greatly extends the period during which the pools remain in good order.

After all, the height of a river is only relative ; what may be thought a spate on one river is merely a rise on another ; and what may make one pool on a given beat quite unfishable merely brings another into ply. Again, on a long river, such as the Herefordshire Wye or the Severn, when the upper part is fining down after a spate, the middle is barely clear, while in the lower reaches there is a high flood. Sometimes as much as three days separates the return of good ‘ salmon-water ’ on the upper reaches from that on the lower.

§ 5. *Of the sun and other matters.*

A man who is in the early stages of salmon-fishing can, for the moment, accept the statement: when the sun is shining down unveiled, sport *with the sunk fly* will be poor in the open pools. The evidence in favour of this opinion is strong, although there are exceptions to this as there are to any other rule man makes about fishing (see p. 253 : § 9). If you look at a pool illuminated by bright sunlight, the bed will appear bleached, as it were; every stone in it that was visible before is doubly so; the shadows thrown on the bottom by the line or by the gut-cast stand out in bold relief; everything, in short, is hard and without any of the colour-gradation that we imagine makes the artificial fly look like a natural and living object. If we may believe Mr Hewitt (*Secrets of the Salmon*, p. 66 and figs. 25 and 26), the shadows cast by sunk gut on the bed of a still pool are enough to distract the attention of any fish that might otherwise have taken the fly. 'I have noticed a leader of ·008-inch diameter cast a shadow as large as my thumb in two feet of water. This shadow often scares salmon extremely and they will not take a fly if it' (presumably the shadow) 'passes over them. Under these conditions the fisherman must either wait until there is no shadow or cast so that the fly only passes over the fish and not the shadow.' When he suggests that the fly should be cast, so that the shadow of the gut shall not pass over the fish, he is thinking of dry-fly fishing for salmon upstream and in gin-clear water; to attain his end, he uses a special kind of cast, known in these islands as the Shepherd's Crook cast (see *Trout Fishing from All Angles*, pp. 213 and 235). But in ordinary wet-fly fishing for salmon, one is rarely able to spot the fish itself clearly enough to cast downstream with this accuracy. Mr Hewitt's other suggestion is well worth applying to wet-fly methods, namely, to use a cast of gut that, having been treated with silver nitrate, sends out no flash (see pp. 123 and 127).

On sunny days I am sure it pays to get down to the riverside as early as possible in the morning, say half-past eight, Summer Time, so that advantage may be taken of any pools over which a shade is thrown by trees growing near to the water's edge.

What has been written above refers to open pools; fish lying in broken water or in stickles are affected in a different way. On several occasions, I have been surprised at taking a salmon on an exceptionally bright day when the sun was standing high, by casting a small dark fly across a stickle or into the thin clear water of the little runs at the head of a pool (see p. 228).

A salmon-fisherman well acquainted with the river he is fishing generally has the choice of trying for a known or for an unknown fish; that is, he may cast for a salmon he has seen that day or previously, he may fish the lodge he knows salmon are accustomed to occupy, or he may, as often happens in the spring-time when salmon show very little, be obliged to fish the quiet areas in the pools systematically and 'on spec,' much as a trout-fisherman does when he is 'fishing the water.' The knowledge of where salmon are likely to lie and where they will take is so important to the angler, that a later section is entirely devoted to the subject (see p. 213 *et seq.*).

The beginner ought, from an early date, to start learning how the current runs through the pools on the stretch he is going to fish and how the alterations in water-level change their characters. From a glance at the first pool he comes to on any day he should be able to say whether this pool will be in order and whether another will or will not be now too slack for ordinary fly-fishing. Those pools which are in order or *in ply* are said, in fisherman's language, to *fish* well. Another way of putting it is to say of a pool in good order that the fly will *fish* well in it. This really means there is enough current to hold the line taut, to cause the feathers of the fly to pulsate and to draw the fly downstream, after it has been pulled by the playing of the rod-top against the current (see p. 183). In a slack pool both fly and line are soon drowned and come round very slowly to the angler's own bank, the fly losing thereby much of its attractiveness. When, therefore, a choice offers itself, the angler should always fish a stickle or a throat in preference to a sluggish stretch (cold water in spring-time excepted) ; but if he has only such a place in which to fish, he should either adopt another method of fishing, such as the greased-line way (see p. 238), or try the methods described on pages 197–200.

§ 6. *Final preparations before entering a pool.*

I am strongly in favour of a novice serving a sort of apprenticeship under an experienced angler. I do not refer to a professional gillie, for with all due respect to the best of them, they do not, as a rule, make good teachers. To learn from a gillie, a man should himself be far enough advanced in the art to be able to separate the golden grain of wisdom from the chaff of dead tradition, hearsay and prejudice. The sort of person I have in mind is a good friend who will put you in the way of learning what the salmon and the river will teach you. Get someone to take you down to the waterside, think for you in the choice of flies, gut, methods and pools in which to fish ; but you ought to insist at the same time that he shall make clear to you the facts upon which he has based his judgments. Unless he does this, you will learn nothing and merely become dependent upon his power of deduction—a most undesirable position.

In making a choice of the fly to ' put on ' for a given pool, an angler is influenced by the height and colour of the water, by the light, the time of day, by the side from which it is proposed to cast and, possibly, by the speed and nature of the water to be fished. It has been my experience that, fishing from the deep side of a pool towards the shallower, a larger fly should be used than in casting into the deep and bringing the fly round into the shoal water. On several occasions I have found a large dark fly is taken, when it is offered from the deep side of the river, and only a smaller light fly is accepted from the opposite bank.

Choice includes size (see p. 226), which is by far the most vital factor, style (see p. 225), which determines the way the fly will sink, and pattern (see p. 227), to which far too much attention is paid, although awkward exceptions do turn up, from time to time, and leave one helplessly searching for an explanation.

The length of a gut-cast ought to be chosen to suit the clearness of the water, the light and the presence or absence of shade over the pool. Its strength is often governed by the size of the fly, because fine gut will break under the strain of a large and heavy fly and also under that necessary to compel a rank or long point to penetrate beyond the barb. Therefore a given size of hook-point (which is almost identical with size of hook) demands a gut-cast of minimum tensile strength. Lastly, when coming to a decision what size of gut to employ, make a rapid survey of the water and see whether there is any difficult and strong current into which a salmon, when hooked, might lead you ; take this into consideration, but remember that it is better to tie on fine gut and to hook and run the risk of losing a fish than to use gut strong enough to turn a salmon that is never hooked. *Rod-top, gut and size of hook should be justly proportioned.*

Here are a few considerations that might be reviewed, as the rod is being put together at the waterside. Be sure the lock-fast joints are well home or the splices are firm, whichever kind of fastening the rod has. The line should be threaded correctly through the rings and be taken out of the right gap between the spacing-bars of the reel. It is very easy for the coils on the reel to slip under one another and care ought to be taken that the line shall run out freely to the last yard. The rings on the rod ought to be carefully cleared of grit and grease. The reel also should run easily and without any sound of the grinding noise that denotes the presence of grit ; if it has an adjustable check, set this to suit the strength of the gut. Have a final look at the gut and the knot by which the fly is attached (see also p. 131).

As you are wading into the pool, be sure your gaff is in your pocket or is slung on your person and is ready for instant use ; and tuck the strings of your wading-trousers inside to prevent them fouling the handle of the reel.

Take a final survey of the pool for any obvious snags to which a fish might happen to run, look behind for any hindrance to your casting and see whether there is any way by which you could follow a fish, if it should feel disposed to drop down to a lower pool.

The stage is now set for the novice to begin his grounding in the art, namely, fishing down a salmon-pool in good wet-fly order.

CHAPTER FIFTEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY *(continued)*

§ 1. *Fishing a pool.*

IMAGINE you are sitting on a rough seat by the waterside in the company of a beginner and of another angler, who has promised to guide him through the early stages of learning to fish for salmon. The latter is tying on a fly and explaining why this particular pool has been chosen, as one well suited to a beginner, and exactly how he wishes him to cast and where he thinks a fish ought to be raised. The novice will have to listen very attentively, even though he may be quite an experienced trout-angler, because there is a great mass of detail and unfamiliar terms to learn, and next time a fly has to be tied on his cast, he will, if he is a wise man, make a point of doing it for himself, even at the risk of mortally offending a gillie. Confidence in the soundness of tackle plays so large a part in fishing, that no one should take the risk of losing faith in a knot, when he is engaged in playing the salmon of a lifetime. And it is remarkable how few people are able to tie knots that can be relied on to hold.

At the risk of being tedious I will repeat some of the wisdom that was poured into the ear of that novice, as he and his companion sat on the bench in the forenoon of a warm day in June.

'We are on the right bank of the river,' said the seasoned fisherman; 'and I chose this side on purpose, because here you will have to fish the water, which is flowing from left to right, left-handed instead of right-handed, which comes more naturally to most men. I have generally found that, when a man gets accustomed from the outset to fish entirely on the left bank, casting over the left shoulder is difficult to get into afterwards. Now for the fly. I have picked out a simple pattern in size no. 2, which is about right for the height and colour of the water, because the river has, after last week's flood, been running for twenty-four hours or so without any noticeable drop in level or "falling in." It is first-rate salmon-water and there is a full stock of salmon in every pool and also in the flats. I want you, therefore, to wade in gently and as far up into the neck of the pool as you conveniently can—go as far as you are able without losing your balance in the current—and start casting across the stickle at an angle of forty-five degrees or so downstream. I particularly want you to begin fishing really high up the "throat," because salmon are sure to be forced to lie further up it than usual, owing to the plentiful way in which the river is stocked. Now in you go, "Tight Lines" to you and I hope the red squirrel you saw with a white tail will, as you suggest, prove a good omen.'

From that moment onwards, the beginner had to do without any advice and had to recall what had been said to him, while he was on the bank, for it is unfair to talk to a man who is fishing. And it is equally perilous for an angler to turn round to speak to anyone, or to light a pipe at a time when the fly is still passing over a salmon's lie, in short, to take his attention for one instant off the business in hand. It is absolutely certain a fish will choose that moment in which to take the fly.

The novice, accordingly, waded in as he was told and, after drawing off line and working it through the rings, made his first cast across to the slack water on the far side of the main current. The pool was on the narrow side and therefore he could, without spoiling it, fish the whole width at the first time of going down (see p. 205). But he noticed at once that a belly formed in the line immediately it touched the water, which brought back to him the hint, given but a moment ago, on the best way of 'mending the cast.' He had been told to lift the point of the rod and with a twitch cause several yards of the line to fall upstream, so that the belly in it was straightened. By this means the fly was allowed to fish properly and not dragged across the surface of the pool.

The effect of allowing the downstream bow to remain in the cast is discussed on page 243. He found, however, the current in this particular pool was too strong for the manœuvre to be successful ; but he made the discovery that, by throwing a longer line and at an angle that placed it further downstream, there was less tendency for the fly to *skirt,* that is to skid along the top of the water without sinking, and that it would be more likely to go straight under directly it touched the water. His teacher, sitting on the bank, noticed with approval the change of tactics, for it meant that his pupil had the gift, as valuable to a fisherman as to anyone else, of thinking for himself and of acting.

Some men fish a left-handed pool by casting over the right shoulder and then either keep the rod in the right hand or change it over to the left. I think this practice is a mistake, because a belly is thereby put into the line that cannot easily be taken out. But when one is fishing from the right bank, the upstream throw over a favourite lodge or catch is more effective when it is delivered over the right shoulder than when it is made over the left and *vice versa.*

The beginner thus fished down the stretch, moving, as he had been instructed, one step at a time and being extremely careful to fish every cast out fully, before taking a step forward and making a new one. He had been warned of the danger of moving downstream, while the fly was passing over the fishable part of the pool, because such a movement meant the line would cease to be taut. If a fish should choose at that moment to seize the fly, he would have only a small chance of hooking it.

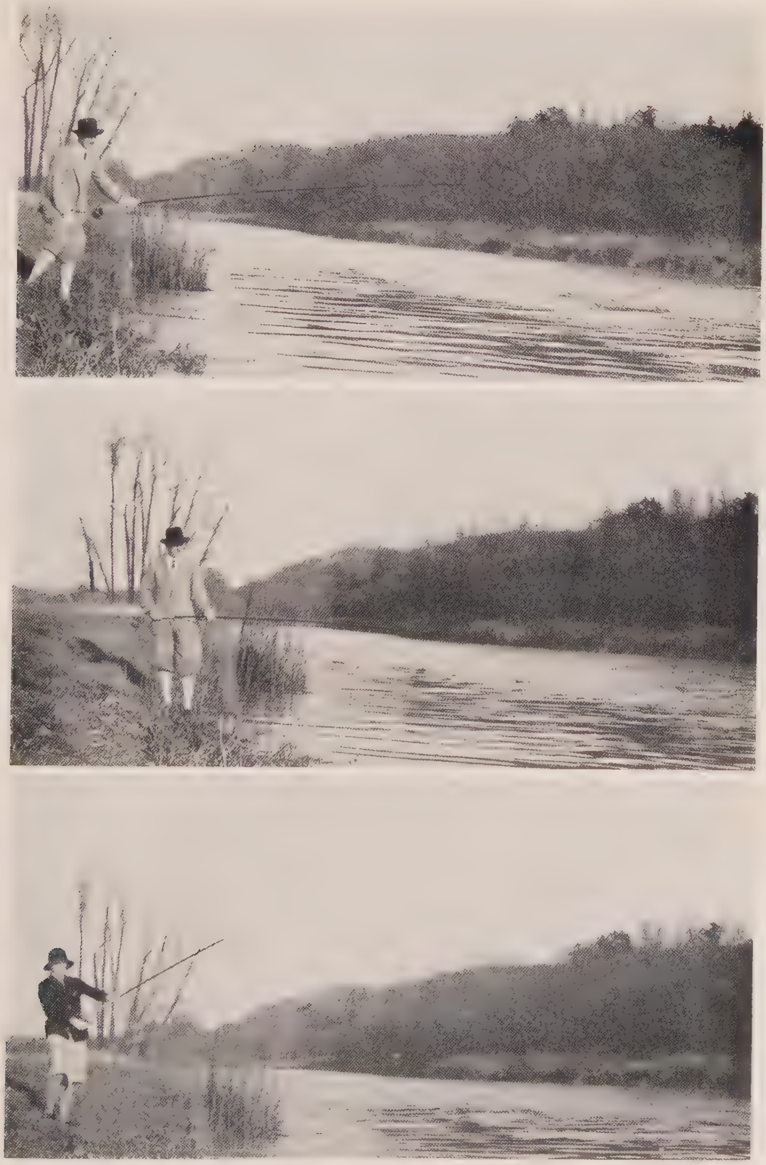
Thus the pupil continued systematically down the pool, taking care the line should always be free of the handle of the reel, holding the rod in the orthodox fashion (see p. 136), gently pressing the line with the inside of the left forefinger against the cork handle and, where he had been previously told there was sure to be a salmon, *hanging* the fly in the current, so that the fish might have every encouragement to *fasten* (see p. 184).

On page thirty of *Letters to a Salmon Fisher's Sons,* Mr Chaytor recommends that the rod should be extended over the stream and the rod-point kept a little *above* the fly. This helps to sink the fly, or, at least, prevents it from *skirting* where the current is strong. But, as the fly travels round in quieter water, it probably pays to swing the rod-point over towards the bank and even to take in a little line. By doing this, you will lessen the risk of the line being gripped by the slack water and possibly drowned ; but the main advantage is that you retain contact with and some measure of control over the fly. If there is a stream of moderate pace right up to your own bank, follow Mr Chaytor's advice and keep the point of the rod well over the current. But there are so many possible variations in current, that every problem deserves its own peculiar solution. There, again, watermanship will tell ! One thing is quite certain. While the fly is hanging below you, the point of the rod ought to be raised high, or held horizontally over the water and at right angles to the line. The former position of the rod provides the greater safety-factor in the event of a sudden snatch.

The question of whether the fly should be worked across the current had wisely been deferred, until the beginner should have gained enough experience to be able to form some opinion of his own, for this question is rather a thorny one (see p. 183). He had, therefore, been told to keep the point of the rod steady, while the fly was travelling round in the current, and only to give any motion to the fly, when it had reached a point directly below him and was being allowed to hang there. This was done as a final inducement to a salmon to come up to the fly. More often, however, he allowed the fly to hang and obtain its movements from the stream. A further attempt to persuade a hesitating fish was then made. The fly was drawn up a couple of yards in little jerks, by taking in with the right hand that length of line, before making the next throw.

In this way the whole pool was fished out to the tail, the very end of which, even the rough water just over the sill, might easily prove the only part to yield a fish ; but there was no response to the fly, nor did a fish show. He returned, therefore, to the seat to receive the just criticism of his efforts he knew was awaiting him.

The comments on his first attempt ran thus : ' On the whole you fished very well and there is only one fault, a natural one, that needs pointing out. When you reached the broader part of the pool, you lengthened line unnecessarily and cast much too great a distance. Had you known the bottom of the river better, you would have waded in further and thus been able to cover the water effectively with a shorter line. You would not, in that place, have thereby spoiled the pool for the next man (see p. 205). It should be the aim of every salmon-fisherman to use as short a line as practicable, because it is much easier to hook a fish, when he is using a moderately-short line, than when there is an excessive length through the top ring. I am thinking of occasions when you are fishing with a sunk fly. The greater the length of line, the greater is the amount of elasticity to be taken up before the hook is pulled home and the less the angler is in touch with the fly itself, which means there is considerable delay, after the fly has been seized, before he is aware of the fact. Further, it takes an appreciable amount of time to straighten out the



Plates 32, 33 & 34

ARUN, SUSSEX

TOP : FISHING OUT THE CAST.

CENTRE : SHORTENING ROD AFTER THE MANNER OF MR. CHAYTOR. (SEE PAGE 190.)

BOTTOM : PUTTING STRAIN ON A FISH.

belly or sag in a long line, after the rod-point has been raised in the act of tightening on a fish. Everything, therefore, points to the use of as short a line as will efficiently cover the " holding " parts of a pool.

' I was glad to see,' the experienced angler continued, ' that you took advantage of the passing clouds, when you began to cover the most likely bit of the water ; it would have been a pity to have fished that piece with the sun shining down at its brightest. But I think you hardly gave the fish, which is generally to be found lying close under those overhanging trees, a fair chance of securing the fly. I know you cannot cast underneath the branches without running a great risk of being caught up in them ; but you can fish that part, if you cast a long line well on the upstream side of—in fisherman's language, above—the first of the branches and then trust the current to carry the fly underneath. It entails long and accurate throwing ; but this is one of the occasions when it is worth going to the trouble of making a dozen casts or so, because fish that lie in such places are apt to snap at the fly and argue about it afterwards ! '

When the learner showed very plainly he was a little disappointed in failing to raise a fish, his companion told him he should find consolation in not having seen a salmon show, for when they do ' come on to the take ' sport is all the better. A salmon that is disporting itself in a pool is not generally a taking fish.

' Besides,' said he, ' there are always far more fish in a pool than would be guessed from counting those that actually have shown. At the height of the season, there are certainly five fish in the river for every one that is seen. Few opportunities occur in the rivers of these islands, as they do in those of Newfoundland and Nova Scotia, of counting the actual number of salmon in a pool or stretch ; but when conditions make this possible, you will be amazed at the large number present.'

He next explained why he thought the occasional upstream cast paid so well. A fly cast upstream to a fish sinks more readily than does one cast downstream, because the latter is being dragged by gut that is under considerable tension due to the weight of the water and is, therefore, kept near the surface. It searches places denied to the fly fished in the normal manner.

' There might appear,' he said, ' to be little difference between the fly fished upstream and that which is dragged down by the belly in a line ; but the essential difference is that one is swimming down and a little across at approximately the same pace as the current, while the other is being dragged rather more across than downstream, and at a speed far greater than that of the river. And, further, the attractiveness of a fly, intentionally pulled through the water across a salmon's nose, consists largely in the speed, which makes the fish think it is going to lose its prey. This is quite different from the *drag* or *lash* due to a taut line pulling a fly skidding across the surface of the water. Mr G. E. M. Skues quoted the distinction drawn between them by Louis Bouglé, as *drag de remplacement* and *drag de rétention*.'

' I see,' continued the experienced angler, ' that you are proposing to sit here, smoke a pipe and give the pool a rest. I do not believe in hammering the fish too much, but I am sure you will stand an excellent chance, if you go in again at the top and go down the stretch again carefully. See the point of your hook is still there—I should not otherwise change the fly—and fish just as eagerly and keenly as though you were going down the pool for the first time. And if you should fail to raise the fish I saw show its nose just now in a very hopeful way, you can leave it and come again and see whether "such a change may have come o'er the spirit of his dreams as will give you cause for joy." '

§ 2. *How the salmon was hooked and played.*

It was very fortunate that the beginner looked at the fly, for he had been fishing part of the pool with a broken hook-point. This had clearly been caused by allowing the line to go too far behind him during the back-cast. The fly had touched a stone and the point of the hook had snapped off without making the little tinkling crack that usually gives the angler warning. The fly was quickly changed for one similar in size and pattern ; and he began fishing the water ten or twelve yards above the spot where the salmon had been seen. If it is true, as my experience leads me to think, that a salmon, which has risen, is cruising about the pool ; it may be some little distance from the spot where it showed, by the time the angler can get his fly there. It is always better, therefore, to start higher up, in order to make sure of covering the salmon, for, even if it has moved lower down the pool than the place where it rose, the angler is creating a sort of screen between it and its lodge, so that it is almost bound to see the fly. One does not want to run the risk of putting the fly right on top of the salmon ; it is therefore better to bring it, cast by cast, nearer to the place where the fish showed.

There is a tremendous advantage in knowing beforehand where and when a salmon is likely to take the fly ; although every fisherman, at first, feels on that account a kind of nervous excitement, which can only be controlled by experience and firm determination to be absolutely calm when the moment comes to tighten on the fish. Some salmon, when they take the fly, do so in a violent manner that, on occasions, upsets the nerves of even the most expert fishermen ; but it will be discovered that every season brings its increase in calmness and the realization that normally the hook will go well home without any conscious effort on the angler's part (see p. 185). The true advantage lies in being able to take the precaution of seeing that the line is clear of the reel-handle and of adjusting the hold of the finger upon the line (see p. 190), so that a sudden strain may not break the latter. And also a chance is given of making a note of any snags, against which a hooked salmon might rub out the fly, or entangle the line, and of the way of following a fish, if it should choose to leave the pool and there should be no other course open than to let it go down.

Step by step the fisherman brought the fly nearer to the place where the salmon had shown and, just as he had reached a point from which he was covering the lie, he was observed to draw the rod firmly back over his left shoulder, until it arched beautifully under the strain of a heavy salmon. He immediately placed the butt of the rod against the top of his left thigh, slipped his left hand up to the extreme edge of the cork-grip and started to back slowly out of the pool. For an instant, the fish lay inert and unresisting, as though it did not yet realize that the hour had come for it to fight for its life. Then it turned and went downstream at a tremendous rate, the reel screaming as line was torn from the spool, while the angler was anxiously making his way backwards out of the pool and trying to keep the line as taut as he could. He had been specially warned that, on hooking a fish, his first care should nearly always be to get out of the river. If the river is in flood it is dangerous to remain in heavy water, while you are straining against a fighting fish. You may have to follow a fish and should at once get ashore, so that you may be ready for this manœuvre. Whichever way a fish moves, it is good tactics to keep opposite ; this can best be done by walking up and down the bank and swinging the rod-point inland slightly and downstream, so that side-strain is applied with the shortest possible line. On the whole the danger of having the line *drowned* is less, when you are on the bank, especially a high one ; and this is worth some consideration, because a drowned line is a frequent cause of loss through the gut being broken against the weight of the current.

As soon as a salmon has recovered from the shock and surprise of being hooked and decides to run for it, allow it to do so, because this is the essence of the game itself, is very tiring to the fish and ‘ is doing your business for you.’ The exceptions to this rule rarely occur.

In the tail of the pool the fish jumped into the air ; the angler responded by lowering the point of the rod, so that the hook should not be torn out nor the line broken, should the salmon in descending fall upon it, when it was under tension. So much line had, in this instance, been taken out, that it was doubtful whether the lowering of the point was really necessary. Save at that moment, the novice was most particular to keep his rod well bent, so that the strain might be maintained and the line kept taut. This should always be done, under the penalty of losing a fish. When you are at the water’s level and are following a salmon downstream, keep the rod-point up, even if you should happen one day to have an experience similar to mine, trip on a stone and sit down in the river, with the water up to your armpits ! Under those distressing circumstances, you must endeavour to hold the rod-point high, keep a steady strain on the line and all will be well. In the early stages of playing a salmon, see that the rod is well bent ; the flexibility of the top will save the gut from sudden strain and the hook-point is bound to keep its hold, as long as the tension of the line is maintained. In playing any game fish, and no doubt many others, even unrelaxed tension is the ideal, but it is sometimes hard to apply.

We left the beginner in the throes of playing his first salmon and, on the whole, dealing very skilfully with it. He had got below the fish, so that it should not have the assistance of being held up against the current, because it is all to the angler’s advantage to make the salmon draw heavily on its strength in resisting both the strain of the line and the force of the stream. Also, it is far easier to put side-strain on from below than from above ; and side-strain is a most potent and effective weapon in the hands of a capable fisherman (p. 171).

There was only one snag in the pool that could with certainty be called a danger-point, an overhanging tree, the lower limbs of which had, through the subsidence of the trunk, dipped down into the water and become a menace to any angler who allowed a hooked fish to go inside them, so that the line was entangled, possibly beyond any hope of recovery, or at least long enough for the fly to lose its hold through the struggling of the fish. The novice had been duly warned of this snag and, rather than hazard in such a jungle the first salmon he had hooked, he held on and turned it, when it made as if to go towards the branches, preferring (and I think quite rightly) to lose a fish through having the gut broken in a good cause than to suffer the ignominy of being hung up in submerged branches and broken. ‘ When a salmon is going,’ had said his instructor, ‘ either in the direction of a snag, or out of the pool into one below, where it is difficult or impossible to follow, and you have failed to turn it with side-strain or by throwing it slack line, there is only one course left : hold on. Lower the point of the rod, which will materially augment the pull you are able to exert, if the need should arise, hold the rod horizontally and hand-line the salmon, a procedure few fish can withstand for long ; and, if any part of the tackle gives and the salmon goes free, I should be willing to bet that, if the gut be good and fairly new, the cause of the parting was due to the hook having been torn out of the flesh, having been opened out by the pressure, or having been broken at bend or barb’ (see p. 221).

The experienced angler stood, gaff in hand, behind his companion and *in low tones* gave him advice that enabled him to bring in the salmon at the right place for gaffing. Here we will take our leave of them and consider in detail several points that have been raised in this section.

§ 3. *More on fishing a pool.*

‘ It is indispensable to have a quick eye, and a hand : your fly, or its exact position, should never be lost sight of : and you should imagine every moment of the livelong day that an extraordinary large salmon is coming at it.’ Thus wrote Scrope in *Days and Nights of Salmon Fishing on the Tweed.* Fortunately the habit is easily acquired of watching the water vertically above the point where the fly is judged to be during the ‘ come-round,’ that is the journey from the spot where the fly entered the water to where it hangs under the angler’s own bank and directly below him. With practice it becomes second nature to keep a keen look-out for any signs of the annexing of the fly and at the same time to be aware of what is going on behind. So fully can this instinct be developed, that after a time you will get a wonderfully accurate idea, from the sound of its return to the water, of the position of a salmon that has jumped behind you. This is true observation ; but of the comings and goings of other anglers and of attempts to engage you in conversation, while you are at your job, you ought to see and hear nothing.

The rule about moving one step or two steps at every cast is one that applies particularly to fishing on Association waters, where there is very often a queue of members waiting their turn to fish the pool down, and also one that is useful when a long large pool has to be covered thoroughly, as it supplies a methodical way that ensures it being searched. Two steps between casts is far better in long pools, unless the angler adopts the far more efficient method of radial casting (see p. 249, bottom). A step at a time is tedious and does not make for a high standard of fishing. But where the angler owns, or leases the water, or has for the day the sole right of fishing all the pools on a beat, he ought to make sure that the best lodges are fished very carefully, so that the salmon shall have every opportunity of seeing and taking the fly. Webster says that a single cast is enough 'to determine whether salmon are at hand and in the humour to take a fly, but a few more attempts must be made to allure a fish from any well-known favourite haunt; and all casts, wherever made, should be in the angler's best style' (*Angler and the Loop-Rod*, p. 270). The soundness of his first proposition may well be doubted, but the rest of his advice is good; I only wish that he had added how deadly at times is the fly cast upstream to the salmon that refused it, when it was presented in more orthodox manner.

Covering a pool thoroughly means giving the salmon a chance of taking the fly, if they wish to have it. In Scrope's words, 'You should throw clear beyond the spot where the salmon lie, so that they may not see the fly light upon the water. . . . In this manner the fish see your fly only, and not your line.' Then you should do what you can to control the fly, so that it swims or 'fishes' deep, and thus stands a slightly better chance of attracting a fish, if it gets down to where the latter is lying. Except in cold or in dirty water, it is very doubtful whether the sunk fly has any advantage over one fishing just below the surface (see Transitional chapter). The best way of sinking the fly a little is to keep the rod-point low and almost touching the water; but it should not be pointed, so that the rod and line are brought in a straight line, otherwise there would be no compensation in the bend of the top joint of the rod, if the fly should be violently seized by a salmon. Whenever, therefore, the rod-point is held low, the rod should be held well over the stream; and this is of great assistance in sinking a fly that is swimming across a strong current; and so is taking the belly out of the line by mending the cast (see p. 243).

Do not put too much faith in the ability of a lowered rod-point to force a fly to swim lower than it naturally would. To a certain extent, a very heavy iron will carry a fly under; but a jacket of fine lead wire under the dubbing or a small weight on the cast is a far more effective way of sinking it. An Akroyd I tied in this manner proved to be a most successful high-water fly, both in attracting and in hooking; it is worth noting that the centre of gravity was thereby lowered, so that the bend was above the line of the shank.

§ 4. *More about playing and hooking a salmon.*

Once upon a time I hooked a salmon that made off on its first rush with such speed, that it beached itself on the shore opposite, where it lay writhing and kicking until I cautiously drew it back into the water. It thereupon landed itself on the bank from which I was fishing, but did so at a place I could not reach, owing to intervening bushes and an awkward wire fence. Again I pulled it gently back into the river; and the contest followed a normal course. But very often you will see a salmon, after a moment's hesitation, get off the mark with such speed that, before you realize what is happening, it is running up the shallows in the tail of the pool; or it is showing its back, as it makes its way with snake-like motions through the thin water. Take advantage of the second's grace, given you by a salmon as soon as it is hooked, to take stock of the situation, if you have not done it before. Note the easiest way out of the pool and think out the best manner of dealing with any emergency that might arise. Look at the time, so that you may, later on, be able to gauge the most likely taking-periods for that season of the year. Record this in your diary, whether you land the fish or not (see p. 211).

While a salmon is running, the hand should be kept quite clear of the reel, for a finger or a coat-sleeve, incautiously allowed to get foul of the handle, is almost sure to put a dangerous check on the fish ; and that generally entails a broken cast or a fly torn from its hold. If the spring controlling the pawl of the check is too weak to prevent the line from over-running when a salmon is taking it out, the same spring should, if possible, be adjusted or replaced by a stronger one.

As soon as you feel that a salmon has come to the end of its run, gather in line as expeditiously as possible ; a slack line is an invitation to a fish to take it round some snag or submerged stone, through which it is either jammed or chafed and, perhaps, cut. At times a salmon will come back so quickly, that you will wish your reel was of the multiplying pattern ; but the pressure of the water against the line will generally be enough to hold the hook securely in position, until the rod resumes the strain. If the bank is clear of bush and fence, walk backwards inland while you are reeling in.

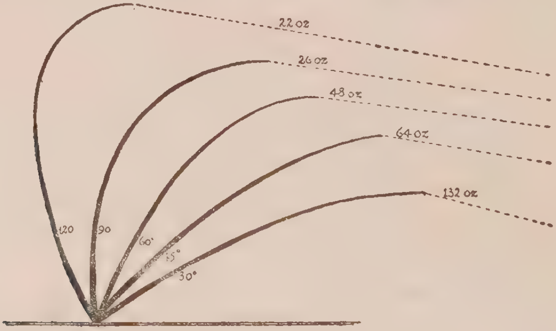


Fig. 62.

This shows strains that can be exerted by a rod and makes it clear that 'butting' (120° or so) is the worst possible way of putting additional pressure on a fish.

Above all, keep the point of the rod up. The more the rod is bent, the safer is the gut from being broken by a sudden strain and the less is the leverage upon the fish. This is rather different from the effect that anglers of the last century thought they were achieving by 'giving a fish the butt,' or, as Webster puts it, 'presenting him unreservedly with the butt,' or 'You see I show him the but of the rod, and his strength is counterpoised by a very long lever' (Davy, *Salmonia*, 3rd Edn., p. 178). What is meant by showing a fish the butt is best illustrated by turning up a series of diagrams in *Secrets of the Salmon*, pp. 26, 27 ; but if a copy of that book is for the moment not available, some idea of it will be gathered from the fig. 62 in this volume. The main deduction one draws from a study of these diagrams is that, to put more strain on a fish, the rod should be lowered, so that the pull is straighter. It is, therefore, clear that until the moment has arrived for dealing more severely with the fish, the rod-point ought to be kept well up, especially when very fine tackle is being used.

How a salmon will sometimes appear cunningly to make use of the current, in order to get a rest during the course of the struggle, was most ably demonstrated to me by one that, after a round of five minutes or so, made a point of swinging under my own bank, in an area of slack water, sheltered by a group of stones below where I was standing. There it lay recovering its breath, nor could I get it to leave sanctuary until it wished to open the next bout. This procedure went on for three quarters of an hour, reasonable enough if the fish should turn out to weigh forty pounds or more, but something more than generous to the fifteen pounder it proved to be. At length, I got that salmon by holding it very lightly and so persuaded it to go above me ; I then put on the tackle all the pressure I dare and, using side-strain, brought the fish into a convenient bay, higher up than where I was standing. The rest was easy. I do not offer this example as evidence that a salmon has intelligence enough to ally itself to the current with the purpose of beating the angler in one way or another. The incident happened through the configuration of the river-bed and the flow of the current adding to the difficulties I had created for myself by handling the fish badly.

Two other manœuvres that a salmon frequently employs are ‘ jigging ’ and ‘ boring ’ ; and how many anxious moments these have caused all of us ! Boring gives me the impression that the salmon is straining, as a horse strains at the bit ; but jigging feels as though the gut were being pulled in little jerks, as a horse will pull and get its head down, when it is trying to throw the bit forward and get it between the teeth. Of the two jigging is the more alarming, but I am sure a hook, once well home, is rarely dislodged thereby. Yet every moment I expect the hook to be worked free, which is a precise measure of the salmon's hopes, as it shakes its head violently, this way and that, in its efforts to go free of the *unknown and invisible power* that, wherever it wishes to go, restrains its liberty. *I do not believe a salmon is trying specifically to get rid of the hook.*

Boring is little to be feared, except when it means the searching of the sides and sharp edges of the rocks in the pool. It then becomes perilous, from the fisherman's point of view, because the gut may be chafed and even rubbed right through. When a salmon is doing all it can to rid itself of the pull of the line, it strains against the latter with its head down, sometimes at an angle as great as forty-five degrees from the horizontal ; you will often notice this when, in the course of the struggle, it comes near to you, provided that the water is limpid enough for you to see what is taking place. This familiar attitude is clearly adopted by the salmon, because it can in that way get a greater purchase on the water than in any other. When you have forced a salmon to lift its head, you may take it as a sign the struggle is all but over ; also you will understand what the gillie means, when he tells you that ‘ its head is still down,’ or that ‘ it is coming up.’

CHAPTER SIXTEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY *(continued)*

§ 1. *Yet more about playing a fish.*

THE ideal to aim at in playing a salmon is to persuade it to 'do your business for you.' A fish that jumps frequently in its efforts to get rid of that which holds it, or gaily rushes about the pool, soon comes to the gaff; so far from trying to control a lively fish, an experienced angler will, in most circumstances, allow it to play itself out, although there will be anxious moments when the leaping is going on. But, if the point of the rod is dropped when the fish leaves the water and the line is tightened up directly it returns, there is little cause to fear the loss of a well-hooked fish. There appears to be some kind of resistance in a taut line that helps a fish to twist out the hook. Seatrout are more expert than salmon in freeing themselves when they are in the air; but I remember a small salmon which I tried to hold without dropping the rod, being able to give a Devon minnow such a shaking, that the shell of the bait was thrown up the trace; then with a somersault and another shake it effectually removed the cause of its annoyance, namely, the hooks. Undoubtedly it pays under these circumstances to lower the point of the rod by dropping it either to left or right; but, as I have already suggested in another place (see *Trout Fishing from All Angles*, p. 217), I am inclined to think the angler ought to draw the line away by lifting the rod, when a fish is leaping directly towards him.

All fishermen and many others as well must surely have heard or read of salmon that take a fly—no, snatch is the correct word—and rush madly off with eighty or one hundred yards of line (strip it off the screaming and protesting reel is the true phraseology !). As far as my experience goes, this is not typical of a salmon's tactics, unless it has been hooked in a sea-pool, is foul-hooked in the tail, or has a heavy current as its ally. The story of these energetic fish is often made to end happily; but in real life a salmon that has taken such a length of line off the reel has passed so far beyond the fisherman's control, that there is little likelihood of his regaining it. At the other extreme, there are fish of quite different mentality, whose idea of fighting for life consists in attempts to embrace the fisherman's feet, a most uncomfortable procedure. Salmon that adopt these tactics are very difficult to play; they will neither run nor stay out in the middle, breasting the current, and they refuse to come near enough to be within gaffing distance. The best plan is, first of all, to play them on a very light line, then to treat them as roughly as you dare and, in short, to do everything and anything that will possibly encourage them to go off into midstream. Half the secret of playing any salmon is to follow a middle course between holding it so tightly, that it cannot run and tire itself out, and being so lenient, that it either will ‘ sulk ’ or will take the gut round a stone. Side-strain from below, exerted by a rod held almost horizontally, pointing downstream and swung in towards the angler’s own bank, is the other half. Too much law may easily be given.

‘ Sulking ’ is probably a manifestation of extreme fear and is likely to happen, if the fisherman has been unwise enough to play a salmon with so light a hand, that it has had the opportunity to change its flesh into lead and to anchor itself securely to the bed of the river ! I thought that must surely have happened, when, at the request of another, I took charge of his rod, while he searched for some stones to throw into the water above a sulking fish in the hope of dislodging it. Mr Chaytor states on page 47 of *Letters to a Salmon Fisher’s Sons* that he has never had a fish sulk, because, as he believes, he gives no rest to a fish he has hooked and keeps it on the move all the time. ‘ When he makes a rush, let him go—even give him line pulled off the reel by your hand. But the very *moment* he slackens his efforts, pull him and worry him into action, and in a very short time he will be yours.’ Mr Chaytor goes on to say (p. 59) that, in the opinion of those who have been fortunate enough to have observed a salmon sulking in clear water, it puts its head right down on the gravel and keeps its position by the undulations of an upward-pointing tail. This is certainly my impression of a fish that, after it has made a run only to be checked, has settled down to obstinate straining against the line ; but on the only occasion when I have had a fish ‘ sulk,’ it went down and lay at the bottom of a clear rock-pool and there fastened itself with all the tenaciousness of a limpet, nor could all my weak efforts shift it, the middle joint of my rod having been badly bruised the day before. Eventually the hook came adrift—a 6/0 hook that had never been pulled well home.

I first read of side-strain in Mr Skues’ *The Way of a Trout with a Fly*, page 176 ; since then I have employed it with success in turning a salmon towards my own bank, at times when there was every indication that the fish meant to leave the pool altogether, or to fight its way across a strong middle current to an area whence I could scarcely hope to bring it back, or to stay out in midstream, float down with the current and keep a respectful distance from the waiting gaff. Very often the free employment of this tactic (see p. 218) is the only way of preserving the slight chance one has of landing a fish that has been hooked during a high spate. The method of applying side-strain is to lower the rod in the direction in which the river is flowing until it is almost horizontal, bushes and guard-rails permitting. A strain can then be put on that is very difficult for the fish to resist, because it swims with an undulating movement of the whole body. The effect of a side-pull is to make it far easier for the fish to turn in the direction one desires and doubly difficult for it to bend its head in the other ; there is a sort of bias placed upon it (fig. 63). How different this is from the ordinary vertical tension, by which one attempts to achieve the impossible, namely, to lift the fish bodily out of the water. Side-strain with a lowered rod-point is peculiarly useful when you are standing on a high bank to play a fish, because the line is made to enter the water at the same angle as it would, were you wading. Thus the pull on the fish is no longer direct, that is to say, it passes for a short distance through the water, which functions as an intermediary between the gut and the fish. On the other hand, the rod-point ought to be kept high if the fish is travelling through a rock-strewn part of the river, or through rapids, and whenever there is a danger of the line being drowned in heavy solid water.

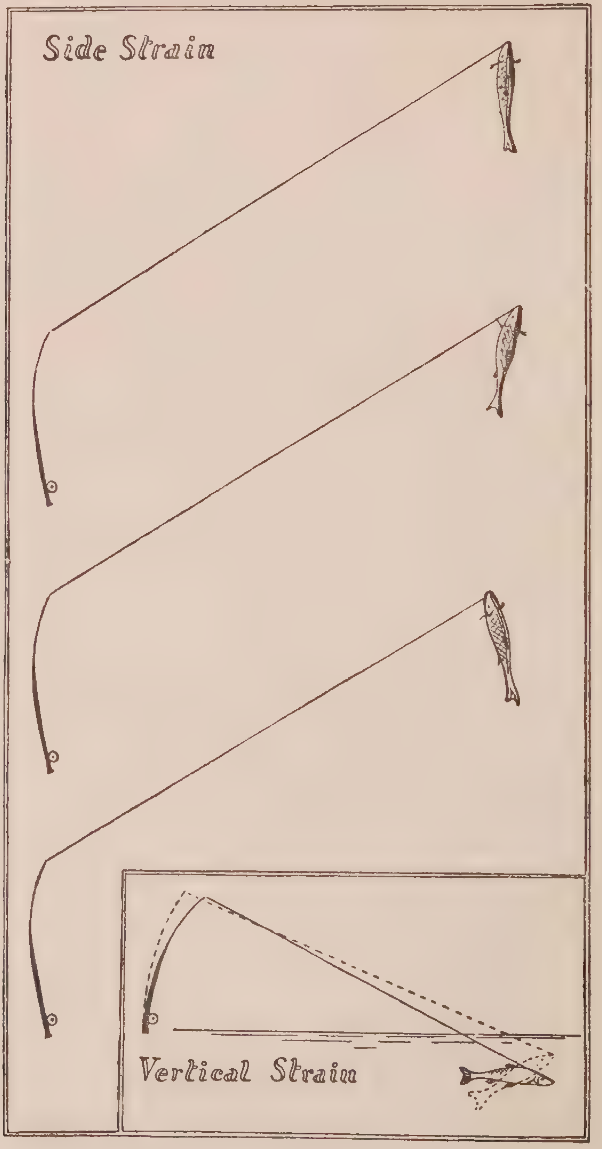


Fig. 63. This illustrates the points of side-strain as discussed in the text.

Sometimes a salmon gets beyond the fisherman's control, because either he has applied side-strain too late or its effect has been neutralized by the influence of an intervening current, so that the fish sets off with determination for the pool below and has, perhaps, already reached the *draw* of the pool in which it is being played. There are only two things left to do. Slacken off the line, point the rod at the fish, take your fingers off the handle of the reel and, in order to relieve the fish of all check, let line be stripped from the spool.

It usually happens that a fish turns upstream as soon as it no longer feels any strain from above. If it should do this, slack line will be carried past it by the current, which will make it think the danger is now below and will encourage it to continue moving up (fig. 64). When you are satisfied it is really coming upstream, recover line and lead the fish back into the main part of the pool (see p. 200). The manœuvre of slacking off is designed when the current, not the strength of the salmon, is your adversary. Try and compel the fish to join you in fighting the stream. The other and final method of saving a salmon from going down into danger or to a place from which you cannot recover it is that of handlining (see p. 221).

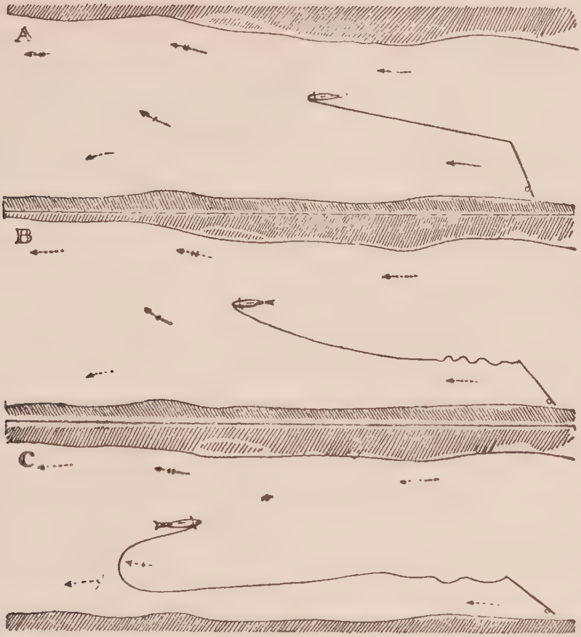


Fig. 64.

A. A salmon is making off downstream and out of the pool.

B. The rod is pointed at the fish and line torn off reel as quickly as possible.

C. Should the fish hesitate and turn upstream, the line will float below, pull its mouth from that direction and encourage it to come up again.

Always land a salmon as expeditiously as possible without using brute force, if only for the reason that the period in which the hook can come away is shortened. Andrew Young had other ideas ; but there rarely is any need to take more than a minute for every pound of the weight of salmon, except when you have to deal with a salmon that has been foul-hooked or with a lively grilse. I refer here to fishing with tackle of stoutness appropriate to ordinary wet-fly methods.

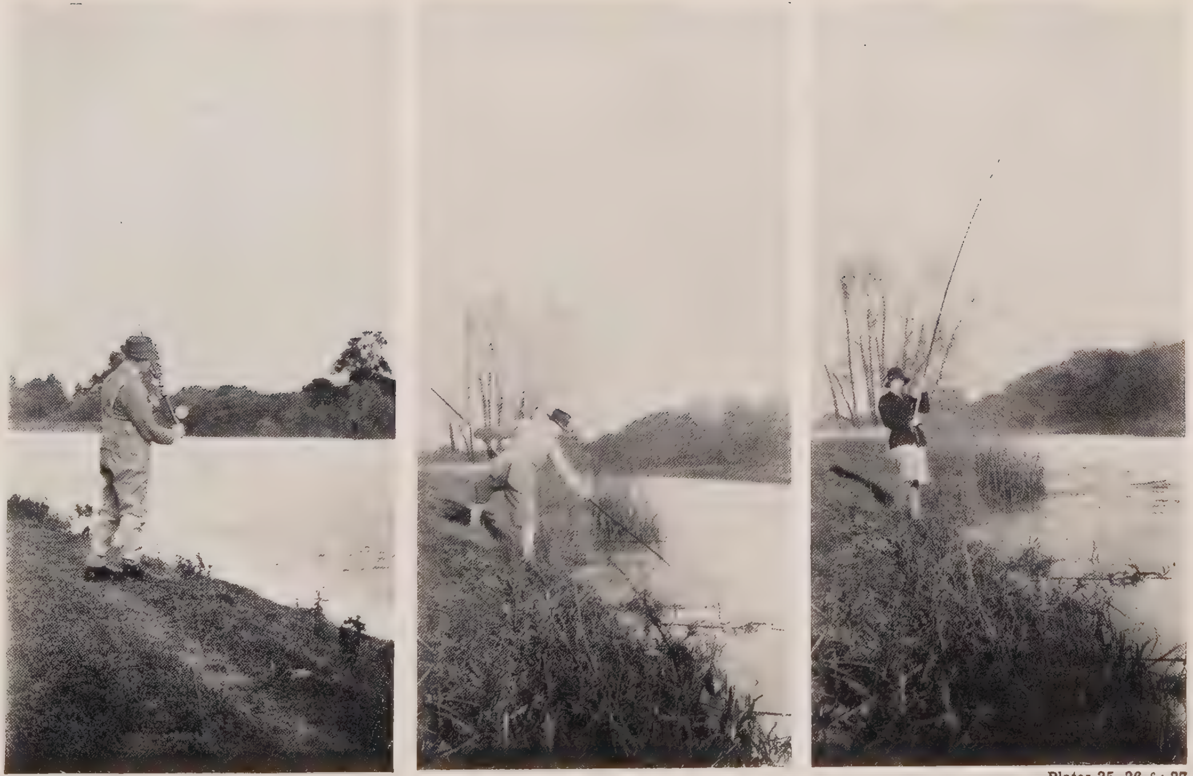
§ 2. *On landing a fish.*

If you have never seen a salmon landed, you will want to know the signs of when it is tired and ready to bring to the gaff. First, its head comes up as I have described on an earlier page ; then the salmon will, if it is allowed, thrash on top of the water in a last effort to get free and sometimes it meets with success ; lastly, when it is thoroughly played out, it turns over on its side and very often surrenders itself to the current. It is too early to gaff a salmon that is only in the first stage of exhaustion, because you will thereby run a grave risk of losing it by gaffing the line or the fly instead of the fish.

When a salmon begins to kick, it is high time that you slackened off a little and raised the point of the rod, because it has evidently far more liveliness in it than you have allowed it to demonstrate. This is due to your having brought it by main force almost within range of the gaff and thus made it appear more exhausted than it really is. Hold the fish less tightly and let it tire itself out more completely before attempting to bring it close in. Sometimes a salmon thus given a little more law will go off for a short run into the middle of the pool ; but, when next brought in, it will come easily up to the gaff. The most favourable moment at which to gaff a salmon is before the last stage is reached, for, unless you are intending to tail a fish yourself or to beach it, there is small need to tire it out completely. Conversely, a gillie will be able with safety to gaff a fish some minutes earlier than you could have done it yourself. I used the word ' safety,' because, by taking risks that have in them the makings of a first-class nightmare, a gillie or another angler can and sometimes does land a fish with many minutes of resistance still left in it ; but I can imagine when and where this would be the correct and only thing to do.

If, during a high spate, a fish is brought by nothing less than a miracle out of the racing stream into a tiny quiet bay, the risk should always be taken, in view of the certainty of losing the fish, should it leave the bay and go down with the current. Otherwise to hazard the fish you have, perhaps, worked so hard for is foolish and may be out of keeping with the true spirit of angling. I have in mind two salmon-anglers, who made a habit of working in pairs with the express purpose of gaffing a salmon as early as possible after it had hooked. They had noticed that a salmon, just after taking a fly or a bait, often comes upstream quite placidly and, without any suspicion of the angler's presence, swims right up to his feet. That was the moment chosen by the second angler to slip the gaff into the fish and bring it struggling to the bank. I am afraid I was guilty of recommending a net to them as more suited to their idea of salmon-fishing.

Only on the rarest occasions attempt to gaff a fish that is running at some depth below the surface, because the refractive power of the water



Plates 35, 36 & 37

PLAYING AND GAFFING

LEFT : THE WRONG WAY TO PUT STRAIN ON A FISH : THIS WAS FORMERLY CALLED 'BUTTING.' CENTRE : GAFFING A FISH FROM A BANK. RIGHT : ROD HELD UP TO PLAY A FISH THAT HAS JUST BEEN HOOKED.

is alone capable of so distorting the true line of aim, that the blow will miss the flesh, may by ill-luck strike the line and dislodge the fly from its hold. And a snatch with a gaff generally tears and disfigures a salmon, the last thing a lover of angling would wish to witness, let alone be responsible for. But, if the fish is heading straight for danger you must take what is possibly your last chance of securing it.

A tired fish will sometimes try to get away by surrendering itself broadside on to the current and a most difficult fish it is to bring to the gaff.

As soon as I see that a salmon is thoroughly played out, I take the collapsible gaff I always carry in the left-hand pocket of my fishing coat, expand it and, placing it across my mouth, hold it firmly with my teeth, much as a Gurkha carries his *kukri*. I make sure before doing this that I shall be able to land the fish without being forced to follow it further, as in doing so I might drop and lose the gaff.

It often happens there is in a pool only one point convenient for landing a salmon, all others being unsuitable through the strength of the current, the presence of awkward stones, or the lack of depth of water A salmon that gets amongst stones starts to kick and may easily get off; it is equally dangerous to guide it into thin water, unless it is utterly exhausted and you intend to beach it (see p. 180). Sometimes there is considerable difficulty of finding a suitable place for gaffing a salmon, hooked in the moderately fast, but unbroken, water leading to a pool; while on page 226 it is related how a Dart fish thwarted for a long time all my efforts to bring it into the side. But how often a fisherman forgets to take a survey of the edge of a pool beforehand and is in consequence compelled to land a fish as best he may!

When you are drawing a fish towards the gaff, be on your guard for the frantic dash for freedom that is sure to follow the first sight it gets of you. This is where a well-oiled reel, carefully adjusted variable check and a smooth joint between line and collar will give you the confidence to reel up short, because you know you can instantly give further licence to a salmon, if it should dart off once more into the middle of the pool. After a time, however, it becomes exhausted, so that it can safely be gaffed and lifted on to the bank.

Occasionally in long pools where there is a considerable stream, a fish will persist in trying to get on the downstream side of you and endeavour to run up into the shallows near your own bank. There are two courses open to you: stay where you are and wait until you can persuade it to come above and then bring it firmly to the gaff; or go below it and trust that it will not then go below you again. The latter course is only to be adopted where there is plenty of 'sea-room,' otherwise this series of 'knight's moves' will soon discover you in the tail of the pool, wrestling with a powerful current for the unresisting body of the salmon! Keep below a fish when you are playing it, but do not weakly agree and aid its policy of drifting down to safety. The best plan is to move up and down on the bank, keeping a yard or two below a point opposite the tail of the fish, and to hold the rod low and pointing downstream and a little inland (see p. 171). The wisdom of whipping the collar to the end of the foreline (see p. 128) is now very obvious, because a knot or an untidy fastening might stick in the top ring and the tightly-wound line would not run out freely and give to the salmon's sudden dash. Before starting off, I clean out the top ring (and often the other rings as well) and slightly grease the whipping joining the collar to the line, which ensures easy running.

When fishing on the left bank of the river, you will find it more convenient to change the rod to the right hand, as soon as you begin to draw a salmon close enough to gaff it. The line is first reeled in until the whipping that joins collar to foreline is still two yards away from the top ring. The rod is then swung back over the right shoulder and well inland, so that the salmon may be brought as close as the length of line will permit. Unfortunately this, the only sound, method by which you can draw the fish up to the gaff you are wielding bends the rod in a way that robs it of most of its power, but increases enormously its compensation-factor, if the fish should kick or suddenly bolt out into the middle of the pool.

This handicap is not imposed when the angler is accompanied by a gillie, who can approach the fish *without the line having to be reeled in short ;* this in its turn means the rod can be lowered a little and additional tension exerted that will bring the salmon speedily within reach of the gaff. None the less I would still recommend a fisherman to dispense, whenever and wherever it is practical, with the services of the gillie and taste for himself the responsibility, the difficulty and the triumph of landing a salmon. That is the only way to learn how to bring a fish in, when a gillie is preparing to gaff it for you. Let him stand still at a place he has selected and manœuvre the salmon until it is well within his reach.

§ 3. *Gaffing.*

If you will turn to plate 36, you will notice that the fisherman has turned his right shoulder to the salmon he is preparing to gaff. The butt of the rod is pressed against the top of the left thigh, the right arm is well extended, so that the reach of the gaff may be as full as possible and the weight of the body is for the most part thrown on to the left or inside foot. If you will examine this picture critically, you will notice that the angler is trying to make the most of the reach of the right hand and to keep the flexed rod-point as far as possible away from the riverside. It will also be apparent that it is far easier to gaff a salmon that is being played on a short fly-rod or on a spinning-rod than on one of fourteen feet or over.

It is a great mistake to lift from the water the head of the salmon you are about to gaff ; it puts far too much strain on the gut and there is no proof that it serves any good purpose, although I have heard some fishermen say a salmon is thereby rendered temporarily blind in the eye that is exposed to the air ! Another thing scrupulously to be avoided is attempting to gaff a kicking salmon, whether you are landing it for yourself or are rendering another angler the service you should be glad to give, provided it is asked. Accede to a request for help and put your whole heart and skill into the work you are doing for another, but be very chary of offering to land another man's fish. Further, if you are in any way doubtful of your ability to gaff it at the first offering, hold back and refuse to take the risk. Tell the other man why you have done this and wait until he brings the fish round again and presents you with a more favourable chance. There is only one exception to this rule that you should allow yourself. If you can see the hook in the jaw of the salmon and have reason to suspect the hold is slight and likely to give way at any moment, take the first possible opportunity of gaffing that is offered.

Occasionally, a salmon will be secured as it swims downstream, so that the gaff will have to be brought across the gut. In doing this take great care that the gut is kept clear of any part of the gaff around which it is likely to be fouled, such as the guard for the point fitted to all collapsible patterns. But in slack water it is quite common for the fish to be facing upstream at the moment when the point is slipped into it.

Nine times out of ten gaffing a salmon is the easiest thing in the world. The hook is calmly placed over the back of the fish and opposite the front of the back or dorsal fin ; the point is inserted by drawing the fish towards you across the water, so that it is impaled on the hook by its own weight. The point of the gaff, therefore, should be kept needle-sharp. There is no need whatever to snatch at the fish or to try and drive the point well home. Place the gape over the middle of the back, press the gaff down against the back, so that a deep bite shall be taken, and draw the salmon towards you. At the moment the point of the gaff enters, allow the line to go slack and only lift the fish up when it has reached the edge of the bank. I have assumed that most men are now agreed it is better to gaff a salmon over its back and only to gaff from underneath a very small salmon or seatrout, fish below a limit of four pounds. If you gaff fish of that size from underneath, the gape of the hook is wide enough to miss the belly and probably the backbone as well ; but if you gaff them over the back, the point often penetrates the belly, causes the eggs or the milt to be extruded and disfigures the fish. And the same happens, if a large fish is gaffed from underneath. The forward edge of the dorsal fin has always seemed to me the best point at which to gaff a salmon, because it is evenly balanced, as it hangs upon the hook ; but there are men who prefer to insert the point opposite the adipose fin, contending that the fish will thus hang helpless upon the hook and will be unable to kick.

Whatever decision you come to, make a habit of gaffing a salmon so neatly, that the place where the point entered is scarcely to be seen. A salmon is beautiful in its shape from the depth of its back to the slimness of its tail. Wipe away with a handful of grass any drops of blood, wash the fish, cover it in the cloth and then place it in a cool spot deep among the ferns or undergrowth. Or, if you wish to follow the Irish practice, bleed it in the fashion recommended by 'Hi Regan' (see pp. 104, 105) and place it upon a bed of ferns or small brushwood, in a shady spot so that it may cool and stiffen.

Before the salmon is put aside in a safe place there is one more rite to be performed. Look the fish over ; see if there are any parasites in the gills and what colour the latter are ; see whether any sea-lice are present (you may expect to find them if the sea is within ten or twenty miles (see p. 58) ; note the sex and condition ; look carefully for any peculiar marks and, if you have a spring-balance with you, weigh the salmon. Above all, do not trust to your memory, but write these details down, so that, later on, they can be entered in the fishing-log.

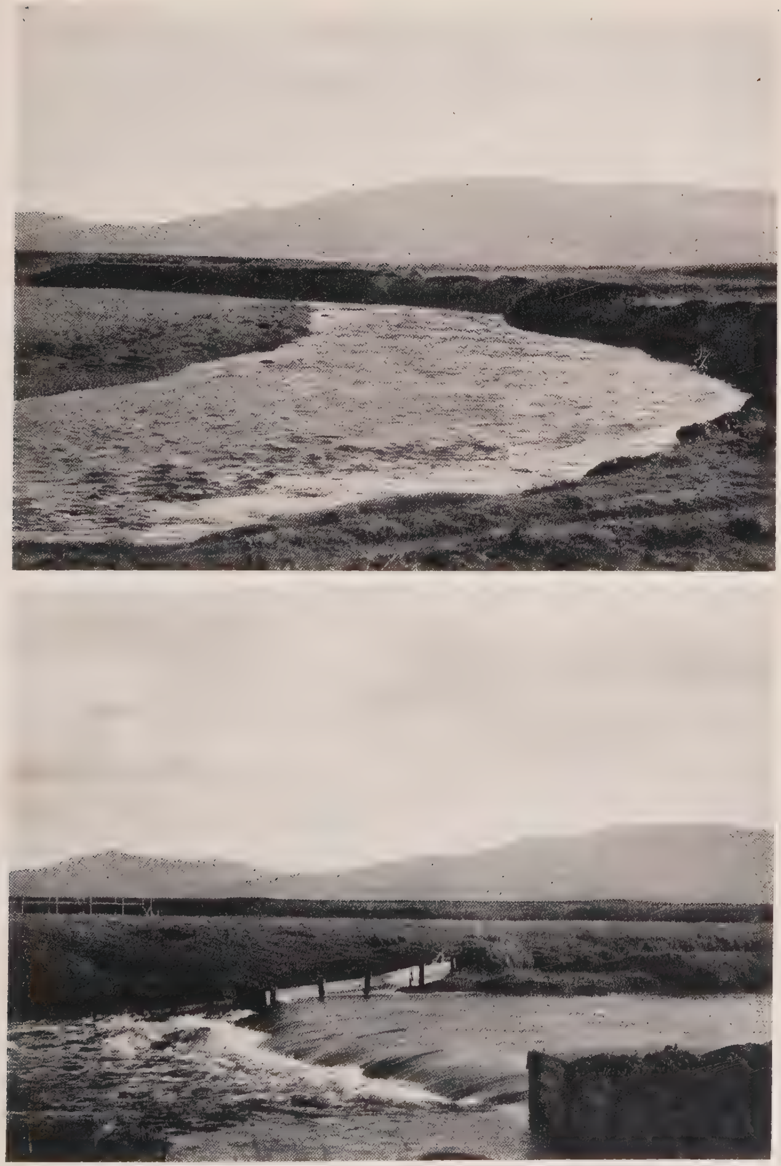
If you are going on to another pool and are leaving the salmon behind until you return, find some safe place for it that is out of reach of otters and hidden from footpads, gypsies and stray dogs. If a fish has been bled, it should be wrapped round with a strip of cheese cloth, hung from a high bough of a tree and covered with some small leafy branches. A salmon that has not been bled is best tied head and tail to a stout stick and laid horizontally across forked branches. I will here break away from the main narrative and relate a story that gives colour to my suspicions of the otter.

Lutra latro! It happened one evening in late spring on the Dart. On the way up to the pool I intended fishing, I saw at the river's edge a dead fresh-run seatrout of about four pounds weight, the type of seatrout known in Devon as *truff*. It bore no marks that I could see to indicate how it had come by its death, but it was evidently freshly killed; I put it on my gaff and carried it up to Holy Pool, in the shallow water at the edge of which I deposited the fish. I started to fish down the pool from a point thirty yards higher up and had made less than a dozen casts, when I was astonished to see a small dark head rapidly crossing the water and clearly making straight for where I knew the seatrout lay. The head grew larger until it became an otter which, on reaching the shoal water, coolly picked up the fish and, although I cast at it repeatedly, swam away with the prize in the most leisurely fashion. Was the seatrout stolen? Or was the otter merely taking steps to recover what it had been forced to abandon through my arrival at the scene of the kill? That will ever remain a mystery; but there is no doubt it was an otter which once entertained itself at my expense on a freshly-killed pike I left on the bank of a reed-encircled backwater. On my return, only a matter of two hours, a large bite had been taken out of the back of the fish in a manner that excluded all thought of rats as the miscreants; otter was written large in the way the skin had been torn and in the size of the mouthfuls. I have heard of other instances of this kind, which suggested the warning I gave at the beginning of this paragraph to safeguard the fish you have caught and so live on friendly terms with one of the few wild animals civilization has allowed to survive in this country.

§ 4. *The other ways of landing salmon.*

On many rivers it is the custom during the springtime fishing, when the kelts are still coming down, to forbid the use of the gaff, so that the fishermen on those waters are compelled to adopt other means of landing salmon. Very often a wide and deep net is employed, a sound enough device when there is a gillie at hand to give his undivided attention to its manipulation. He can easily hold it, even against a considerable stream, while the fish is drawn down into it, head first. But my efforts to net my own fish were so ridiculously ineffective, that I gave up any more attempts and resolved to land, by the method of tailing, the fish I was legally forbidden to gaff. I was driven to this one day by the impossibility of using one hand to control the rod, and keep a strain on the salmon I was trying to land, while with the other I held a heavy net and forced it against a moderate current. After three futile attempts to get and keep the fish in the net, I threw the latter away and, summoning all my courage, for the first time in my life tailed a salmon.

Tailing a fish is quite easy. You ought, however, to be sure, before you



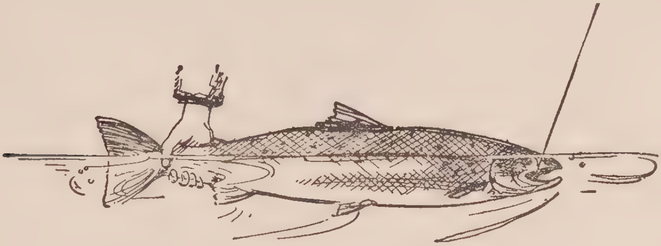
Plates 38 & 39

LAGGAN: ISLE OF ISLAY, ARGYLLSHIRE

TOP: THE RIVER FLOWS THROUGH TREELESS WINDSWEPT COUNTRY. (SEE PAGE 443.)

BOTTOM: THE BOTTOM PLATE SHOWS AN EXCELLENT EXAMPLE OF BANK-PROTECTION BY MEANS OF CAMP-SHEATHING.

try to grip its tail, that it is thoroughly played out and will offer little resistance when it feels the grip of your hand (see figs. 65 and 65*a*). You should also make certain of gripping the tail just above the two knobs on each side of the base of the tail-fin, so that the little finger is nearest to the head of the fish, otherwise the salmon will slip out of your grasp.



THE PROPER WAY TO TAIL A FISH. Fig. 65.

Note carefully how the hand is placed, so that the fish is lifted without any feeling of awkwardness on the angler's part.

Thus a salmon should be tailed with the left hand, when you are fishing from the left bank, and with the right, when you are on the right bank. The grip of the hand would be just as firm, if you reversed it ; but you would find it very awkward to lift the fish in this way high enough above the water to prevent it kicking and also much heavier to carry.

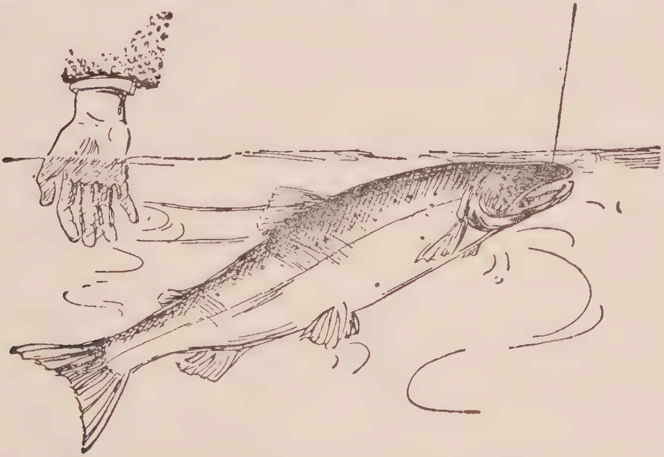


Fig. 65a.

What happens if you attempt to tail an overtired salmon or one that is merely brought into this position by holding its head too hard. Directly the angler's hand touches the tail, the fish will rush away again into the centre of the pool.

The tails of grilse and seatrout are unprovided with these convenient knobs and therefore it is best to net them or beach them. If the fisherman is very skilful at tailing and has a blacksmith's grip, he may be able to carry a grilse by the tail long enough to enable him to reach the shore, but a large seatrout is a far more difficult fish to land without either net or gaff. It is sometimes possible to land a small seatrout by gripping it tightly around the middle and lifting it out. I convinced myself of that on an afternoon in June, when my host and myself were fishing the sea-pool of a river running out of a well-known West-Highland loch. He hooked two seatrout at the same time and was fortunate enough to be able to play both of them to a standstill. We had foolishly left the one and only net some distance away and there was nothing for it but to try to land these fish without it. The seaweed fringing the pool made beaching the fish impossible. I, accordingly, waded carefully in and with one hand seized by the middle the trout that had taken the tail-fly, drew it in towards the other fish, so that its struggles should not dislodge the dropper-fly, gripped with other hand the second seatrout in like manner and bore them most thankfully to the shore ; but these were fish of only two pounds weight apiece, so that I found it quite easy to span their girth with my fingers and thumb. The earliest mention I have found of tailing is on page 167 of *The Fly Fisher's Text-Book*, by Theophilus South (see p. 74). He also refers to the difficulty of thus landing fish under five or six pounds.

There is a curious and very hardy tradition that the best way to get a good grip on the tail of a salmon is to envelop one's hand in a handkerchief before getting hold of the tail. Perhaps it is an excellent idea ; but I have met nobody who was able to say how it should be done. Another method of assuring the hand of a firm grip on the slippery surface of the tail was devised by an inexperienced but most ingenious angler as an emergency measure. He knew of tailing only in the abstract, and took up a handful of the fine river-sand lying at the water's edge, gripped the salmon by the tail and, holding on for all he was worth, dragged it out on to the shingle.

For those who have not that angler's courage there is the mechanical tailer, a simple device by means of which they can 'wire' a salmon in almost the same way as the South-country keeper 'wires' an offending pike, when it is trespassing in trout waters (see p. 104).

If the river's edge shelves conveniently, you can safely beach the fish you are forbidden to gaff or are unable to tail by running it gently up the shingle and cutting off its retreat by standing between it and the river. This is probably the safest way of landing a salmon at night or in the gathering darkness, when there is no one at hand to gaff it ; but the fish must be thoroughly exhausted and the right place chosen to make this expedient reasonably safe to attempt. In other words, you ought to have a thorough knowledge of the pool you are proposing to fish in the evening ; if you have not, make a rapid survey of the shallows of it, before the night draws down. Gaffing a salmon at night is, at best, very chancy work.

Lastly, there is a way of summarily removing a salmon from the river by kicking it out. It is a practice I have never witnessed without experiencing a strong feeling of repugnance. Even in an emergency, few men, I imagine, could bring themselves to treat in so ungrateful and cavalier a manner a fish that has struggled so gamely for its life and, in doing so, has given them wonderful sport.

When the salmon you have just caught has been faithfully dealt with in every detail and before you enter the water again to resume fishing, examine the fly carefully and cut it off. Look over the cast for any signs of weakness or of fraying. Tie the fly on again. Then examine the line within ten yards of the collar to see whether there are any cuts or bruises and make sure the coils are tightly wound on the spool. In recovering line after a salmon has turned and is running towards you, there is often no time to wind it in properly. The loosely-wound line takes up so much room, that the spool runs jerkily and sometimes binds altogether. I once paid for my carelessness in this respect by having the line broken by a salmon that should have been mine.

The following is an interesting quotation from *Barker's Delight*, which illustrates how salmon were landed in his days. 'You must be sure that you have your line of twenty-six yards of length, that you may have your convenient time to turn him ; or else you are in danger to lose him. . . . You must forecast to turn the fish as you do a wild horse, either upon the right or the left hand, & wind up your line as you finde occasion in guiding the fish to the shore, having a good large landing hook to take him up.' I believe this is the earliest mention of gaffing a salmon.

CHAPTER SEVENTEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY *(continued)*

§ 1. *Of styles in fishing.*

MOST of us acquire peculiarities in style by which our friends are able to distinguish us at long distances. We may have an odd way of casting, of holding the rod, of standing in the water and in wading down from cast to cast. But style is here used in quite a different sense. One fisherman will hold the rod-point very low, almost touching the water ; the fly will accordingly swim a little further below the surface. Another will fish the same pool with his rod well raised ; and the fly will come round just beneath the surface and sometimes skim across the top of the water. This way of holding the rod or that soon grows into an inflexible habit. The fisherman is confident his method is better than his neighbour's and he fishes consistently in the same way, no matter what the condition of the river is or what part of it he is fishing. On the contrary, these two styles are masters in their own proper spheres.

It is said there are pools where a fly fished deep is the more deadly and others in which it pays to fish on or close to the surface. This needs some qualification. In deep and dark pools and in springtime generally the well-sunk fly undoubtedly pays well ; but in summer, when the water is warmer, a fly swimming just under the surface is taken better than the deep fly in clear pools on good salmon-water and even when the river is high. The distinction is a vertical rather than a horizontal one, and temperature has a very great deal to do with it. Ernest Crosfield used to say that, if, in springtime, a fisherman saw a salmon take the fly at the top of the water, he was fishing too fast and too shallow ; but, if the fly was taken well below the surface during the summer months, he was fishing too slowly and too deep. He avoided the latter contingency by *pulling through.* This means that the fly is drawn at a speed, slightly in excess of that which the current would naturally impart to it, by the trick of taking in line by hand. He was thus able to control the fly and make it travel near to the surface, which was what he desired. Mr Wood achieves a like result by different means (see p. 225).

On page 28 of *Letters to a Salmon Fisher's Sons*, Mr Chaytor compares the results of fishing deep with those obtained by the angler on the bank opposite, who always held his rod high and worked the fly across the stream in a lively manner. These investigations showed, as might have been expected, the well-sunk fly to be the superior of the other in the dark and deep water. The man who kept the fly near the top of the water proved more successful in light clear pools and in general at times when the river was low. And ' so we came,' says Mr Chaytor, ' to vary the style of fishing to suit, as we judged, the different pools and waters.' He goes on to say, 'The clearer the water, and the more shy the fish, the more I find myself fishing on the surface and playing the fly quickly.' The value of this sound piece of advice is just as great, in spite of being relative. It is a pity Mr Chaytor did not record some facts about the temperatures of the water and of the air, so that his experiences and those of Ernest Crosfield might have been compared.

§ 2. *On holding the rod.*

As soon as a fisherman has completed a cast, he drops the rod into rest with the button against the top of the thigh. If he is fishing on the left bank, he will have made the cast with the right hand leading and will thus naturally place the button against the left thigh, holding it there with the left hand. But the main work of supporting and manipulating the rod and of lifting it in the act of tightening on a fish is performed by the right hand, which should hold the rod at a point near the top of the cork handle. It will be found quite simple, by holding the line lightly between the forefinger of the right hand and the rod, to exercise the proper measure of control over the running of the line, so that there shall be enough resistance to pull the point of a hook into a salmon's jaw. If, however, the butt of the rod is pivoted on the right thigh, the left hand need not hold it.

When a fisherman is on the other bank, the principal rôle naturally falls to the left or upstream hand. On no account should the duty of holding the rod be performed by other than the correct hand, except when the angler is engaged in casting up to a fish he has passed and is throwing with the downstream hand leading on the rod. The act of tightening is usually best carried out by moving the rod sideways and towards the bank; this calls for considerable muscular effort, if the wrong hand is holding the rod. Some men develop the lazy habit of swinging the rod-point round too quickly; this accentuates the belly in the line, which causes appreciable delay in getting contact with the fly. The correct presentation of the fly is a very complex matter. The best rule is always to try and judge from the set of the current how best to arrange that the hook shall be pulled into and not out of the mouth of the fish (see p. 248). When the fly has arrived under your own bank, raise the rod a little to avoid the probability of disaster should the rod throughout its length be pointing directly at the fly, and the compensating factor of the rod-point thus be at zero at the moment when a salmon takes the fly.

There is another method of holding the rod in fishing out a cast, which materially helps the angler to control the rod at the moment a salmon takes the fly and by altering the point of balance makes his task much lighter. It is discussed later in section nine of this chapter.

§ 3. *On working the fly.*

Hold a salmon-rod horizontally and rest it against the thigh as in fishing out a cast. Move it a little upwards and encourage the top-joint to vibrate; control the rod, so that this slow up-and-down movement persists; and you will have reproduced the action a fisherman expects of his rod when he is engaged in working the fly. But does the waving of the top have any real influence on the behaviour of the fly? When there is only a short line through the top ring and therefore the sag of the line in the water is very small, a fly will alternately dart forwards in answer to the pull of the line and, with feathers spread and waving, sink back with the current. Within narrow limits the movements of this fly will correspond with those of the rod-point. But a fly at the end of a long line is barely affected, if at all. The motions of the rod are absorbed by the sag, especially if there is but little current to assist in keeping the line from being drowned. While in water even of medium pace the movements of the rod are, in my opinion, quite unnecessary.

When you are fishing water with plenty of life in it, above all in a stickle or the swifter water of the throat, there is nothing to balance the undoubted disadvantage of working the fly; the latter will naturally present an appearance of having been endowed with vibrant animation and have the quality of speed. You will quickly understand my dislike of working the fly, if you watch a salmon-fisherman who believes in this practice working steadily down a pool. He makes a cast and then settles down to a period of rod-waving. He is, as it were, fanned to sleep, hypnotized by the rhythmic motion of the rod. So automatically does this action become that, were the river to seek another channel, some of these anglers would undoubtedly continue working the fly across dry land!

Working a sunk fly serves as a variation, mostly for the angler, from the ordinary routine of fishing, when a pool has been carefully fished without any result or when a salmon, the position of which you know, has refused to take the fly presented in other ways. Pulling at the fly tends to bring it to the surface and this fact is utilized in surface-fishing (see p. 198); but the movement of the fly in this mode of angling is actually achieved by gathering in line with the disengaged hand. I would rather put my faith in a steady rod-point and in the ability of the current to look after the fly, especially when the fly is hanging below at the cheek of the stream. Always let a well-sunk fly come naturally across a fast run or through broken water; mend the cast if it is needed, but on no account work the fly, which serves no purpose and only making the seizing of it more difficult. Help the fly to travel at a proper speed through slack water by drawing in a little line and by swinging the rod-point inland. But, as a general rule, *don't work the fly.*

§ 4. *Of hanging the fly.*

'The place is a favourite and most deadly cast if the fly is allowed to hang beside the current': in these few words, often I am sure passed by unnoticed by most readers, Mr Chaytor gives expression to a great truth worth many salmon the seasons through. I do not know the 'point of the jetty' he writes of, but I can see in my mind's eye similar places, where the hanging fly is the deadliest, and on occasions the only, method of raising a fish.

A hanging fly is one that is held by the rod-point and allowed to swing in the play of the stream, or in the gentler current at the cheek of a run. In either instance, the rod should be pushed well out over the river and be kept low; but, as soon as a fly has been hanging half a minute or so at the edge of a stream, the rod should be raised slightly (not higher than to an angle of sixty degrees) and line taken in jerkily, a foot at a time, until two yards of it have been drawn in through the top ring. It is then time to make the next throw and ‘ shoot ’ the slack line. During the time a fly is darting upstream in answer to the pull of the line, a salmon, timid and hesitant before, will often throw all caution aside and take a fly that has already been refused as it came round in the current. If you have failed to raise a salmon from one side, cross over and hang the fly on the other side of the stickle, provided a bridge or a ford make it physically possible to do so and you have the right to fish from the other side (see p. 206). It is usual to find fishing a stickle from one side far easier and more productive than from the other. A fly cast from the wrong side is washed away from a salmon and quickly hidden from its view by the white water ; while from the other it is carried to and hangs above the salmon, but this does not apply to the same degree in greased-line fishing.

To fish a fast run properly the fly should be forced down and be made to swim at a good depth and the line kept as straight as possible. A line thrown across a stickle bellies at once and drags the fly rapidly over the surface, unless it is straightened by lifting the belly upstream by a special movement of the rod-point (see p. 243). But whenever it can be done and will not disturb the salmon, the better policy is to wade in as far as the edge of the current, where it issues from the pool above, and cover the water by holding the rod well out across it. This solves the problem of sinking the fly and, to a small extent, of controlling its movements. On the whole, I find it pays to put the fly only a short distance beyond the stickle and not to cast into the slack water on the far side of it, unless the fast water is narrow enough to be spanned by the rod ; this allows me to control the fly.

Short and well-executed throws pay best when searching fast water. Above all, try to imagine where the fly is and watch with scrupulous care for the break made by a salmon’s nose in the hollow of a wave.

§ 5. *Of pulling in the hook.*

The practice of what is termed ‘ striking ’ is based on the assumption a fish that has taken into its mouth a fly or lure will eject it and go free, unless the fisherman assists the point of the hook to penetrate the flesh. This assistance is rendered by raising the rod more or less sharply and the line thus pulled draws the point into some part of the mouth, so that the salmon is hooked.

There is a school of anglers who hold the opinion that fish hook themselves, because the weight of the line and the resistance of the water to it provides force enough to ‘ pull in the iron ’. It might therefore be deduced that fish are more likely to hook themselves in heavy water than in slack, which is undoubtedly true. And certainly salmon do for the most part hook themselves ; but it depends on whether the point comes in contact with a soft part of the mouth, whether the current is powerful enough, what size the fly is, how well-constructed is the barb and how sharp the point. In my opinion, it is abundantly clear that a large hook (no. 1 and bigger) does need some help from the angler in penetrating far enough into the flesh (and sometimes gristle) to secure an adequate hold, that is to go in right over the barb. But, nine times out of ten, the sharp point of all but the large hooks will go home unaided by the fisherman (p. 250). In springtime or when the water is high, a large fly is indicated by conditions ; this in turn compels him to employ a large hook, which needs a little assistance to effect penetration beyond the barb.

Throughout this book I have adhered to the rule I laid down elsewhere of using ' tighten ' rather than ' strike '. The act ought to be deliberate and yet determined and its spirit is well expressed by the description I have adopted. But ' strike ' calls aloud for sharp, almost violent, action, a fact to which many beginners will bear testimony in the shape of the disasters they attribute directly to the use and influence of the word. Put aside the word ' strike ' ; say to yourself, as you are fishing, ' I will tighten—calmly ' ; and you will soon acquire a wonderful poise and the ability to keep your nerves under complete control the instant you feel a salmon, no matter how savage be the pluck at the rod-top. Once you have conquered your nervous reaction to a tug, the deliberate and firm moving of the rod inland will become easy and you will hook salmon as readily as you once missed them. Avoid lifting the rod-point over the shoulder in the act of tightening. You will generally pull the fly away from the fish. *Tighten sideways and with point of the rod almost downstream.*

Faith in the fly chosen is one of the great assets in salmon-fishing ; no less are the power to concentrate, a quiet and modest confidence in oneself and what Mr Skues has aptly called ' hands.' Further, you will acquire, all unconsciously, the power of realizing just a little earlier than you did before the fact that a salmon has taken the fly. If you watch the expert fisherman tighten on a fish, you will sometimes be inclined to think he has had some mysterious warning. But there is nothing in his technique you cannot learn, if you school yourself to be ready at any moment to tighten calmly and in a matter-of-fact way. You will appear, even to yourself, to have a foreknowledge of the moment a salmon is coming at the fly, which is little short of uncanny, until you realize the inner truth of it and how long, after you had felt the pluck of the fish, you had been accustomed to delay the movement of the rod.

This calmness in tightening on a salmon means a great deal, because I am certain more fish are lost through hasty striking than through any other cause. Quite apart from the danger of breaking the gut through a sudden strain, the hurried lifting of the rod that is all too common forces the line to go slack for a moment. The first flexion of the top of the rod in answer to the raising of the butt is downwards ; and this often presents a fish with a chance of which it is swift to take advantage.

' Sometimes, however,' as Scrope said, ' when a salmon is clean run, and in high glee, you can scarcely miss him, strike which way you will.' And he goes on to say that in low clear water the act of tightening should be delayed, because ' you often see the heave of the water and a break before the fish has actually seized your fly. Give him time to turn his head on his way back to his seat, to which a salmon always returns after rising at the fly.' In fact, I believe the best advice that could be given to a beginner, when he is fishing in clear water for the first time, is : if you see a salmon coming to the fly, close your eyes and tighten calmly and sideways when you feel a tug. There is nothing more unnerving than seeing a salmon as it approaches the fly, especially when you are fishing from a rocky ledge into the water below.

§ 6. *False alarms.*

After a drought comes the spate and with it the loosening from the bed of the river long streamers of the *alga*, known as flannel-weed, that always grows in such abundance, if there is no current to carry away the spores. Often small pieces of the weed will continue to float down for three or even four days after the water has risen ; and the fly or the lure will be fouled by it at every cast. This is a source of mild annoyance and means the constant clearing of weed from the hook ; but when the fly comes in contact with a large mass of weed, or with a small piece in a fast current, the impression is given of a fish having come and gone. I do not know how you may distinguish between this pull and the true pull of a salmon, except by a blend of experience and imagination. But, under these conditions, whenever you feel a tug and there is no tightening of the line to correspond with it, you should put it down to weed and draw in line, until you can reach the fly and clear it. Extend the line downstream by the use of the switch (see p. 142 *et seq.*).

Little pieces of flotsam, such as small sticks, twigs and, in autumn, leaves, have much the same effect ; the fisherman tightens, feels no answering pull and is apt to feel a little jumpy. Sometimes these fragments hit the line ; at others they strike the hook with surprising force ; indeed you will often find a leaf impaled on the point of the hook and will wonder at the power of the stream that was the cause of it.

When you are fishing a long line across a current or are letting out line in a supreme effort to cover a salmon too far distant to cast over, you may easily be led into the belief the fly has been taken by feeling a pull on the line, as soon as the current gets a proper grip on it. This does not often happen, because you will seldom be called on to use so long a line ; and, when the guarding of the riverside by trees or by rocks leaves no alternative method, there is nothing to lose by taking the outside chance of hooking the salmon, should it rise to the fly thus presented.

There is yet another cause of false alarm, due this time to working a fly too vigorously in slow-moving water. As the river drops, the slack of a pool soon drowns a long line and, as the fly passes from what does duty as a main current into the sluggish parts, there is a likelihood the rhythm of the rod will not be retarded to meet the changed conditions of water. The rod on its upward flexion meets the heavy resistance of the sunk line ; there is an unexpected kick from the rod-top ; and the illusion is thus given of a salmon having taken the fly rather violently. It is a small point I only mention, so that you may be prepared and may keep your nerves well-poised and steady.

Do fish really come short ? Or is *feather-drag* due to the fly having at a critical moment been snatched away from the salmon by the angler ? Or is it due to bad presentation of the fly ? If a salmon takes wholeheartedly without being hooked, reel in and examine the point of the hook. If this is sound, look at the fly and you will often find the ends of the feathers forming the wing well chewed and possibly showing signs of having been nipped by the jaws of the salmon. *Feather-drag*, in this instance, has clearly been caused by a fish having taken endwise-on a fly it has followed ; this is incorrect presentation of the fly and, therefore, the fault of the angler alone (see p. 248). Controlling a sunk fly, so that it shall come broadside-on to the fish, is a far more difficult matter than is greased-line fishing. An alternative is to change the fly for one dressed on the same size of hook, but with shorter wings and body, in taking care that no belly that can be straightened shall be allowed to remain in the line and in keeping the rod-point up a little as the fly comes round. If you feel the tug of a fish, swing the rod in towards the bank, preferably on the downstream side, and tighten up with deliberation. Above all, *do not strike !*

§ 7. *Pricking a salmon.*

Upon the question of whether a salmon will come again that has taken a lure into its mouth, has felt the sharpness of the hook and has succeeded, before the *iron* has been pulled home, in ejecting the hook I prefer to keep an open mind. If a fisherman *pricks* a salmon and shortly afterwards and in the same place hooks one, it is rarely possible to be quite sure whether the latter is or is not identical with the fish he missed a few minutes earlier. Only once have I been in a position to say with certainty a fish I had pricked cared so little for the pain of being pricked or the sensation of having the fly torn from its grip, that it returned again and again to the assault, until it happened to leave things too late, failed to eject the fly in time and was soundly hooked. Inside its mouth were numerous tears and gashes, which were still bleeding from the scratching of the hook-point. Looking at the position of the wounds in the mouth, I could not conceive how this salmon had been able to postpone being caught until the fifth time of taking the fly !

There are some men who complain bitterly of one of their companions that he fishes so carelessly he pricks all the fish in the pools. As though anyone pricks and misses a salmon on purpose ! They are convinced these salmon will not take again, until the latter have moved up into another pool. To balance this there is the man who contends that pricking a fish whets its appetite for killing whatever flies and lures are taken to be ! And thus the matter stands. The analysis of a salmon's thoughts is still to be undertaken ! ! In its mind, if such there be, hope, disappointment and the remembrance of pain may find a place. But, until we know a great deal more about these things, we can afford to leave the question unanswered ; and after all the whole matter is one more of interest than of practical value.

A salmon that is thought to have been pricked often acts in much the same way as one lightly hooked. It *shows* almost immediately afterwards and sometimes gives a spirited gymnastic display, by making a series of flat jumps or *ricochets* across the surface of the pool, reminding one of the stones thrown, as in ' ducks and drakes,' to skim along the top of the water. Fright also will very often be the cause of a salmon rising straightaway and leaping from the water, chiefly I imagine due to having been touched by the line or having been pricked externally by the hook-point, or through having had the fly snatched away, before it could close its jaws upon it. Evidence that a salmon has been pricked on the outside is sometimes supplied by a scale being found transfixed by the point of the hook, when the fly has been brought in for examination. The fish has thus clearly escaped being foul-hooked by a very narrow margin. Foul-hooking is the penetration of the hook-point in any part other than in the interior of the mouth. The fish has for some reason or other failed to get the fly into its mouth or has not closed soon enough upon the fly when it was there. Instead, the salmon has run up against or has rolled over on the gut, the fisherman has felt a tug on the line and has tightened, only to find he has pulled the 'iron' into the flank, the belly, a fin, the tail, or some other part of its body. Pricking a salmon on outside and foul-hooking occur so frequently, that I attribute to them some of the losses usually put down to pricking a salmon in the mouth, or to the hook having torn through a very slight hold.

§ 8. *The ways a salmon can be hooked.*

Missing a salmon is a melancholy theme. A change of subject to that of the different ways a salmon is securely held by a hook will be surely welcome.

It is well known that a fish in taking a fly does not actually seize it with the jaws. It swims towards the fly and, as it gets near, opens its mouth, swims a little faster and sucks in the fly. The latter is drawn in together with a gulp of water that in the ordinary course of events would have been 'inhaled.' For, if you think of a fish as breathing water as terrestrial animals inhale air, you will understand easily how a fly gets into the mouth of a fish.

When a salmon takes a fly confidently, the latter will often be found stuck far back in the throat. I have known one instance of the fly having been drawn into the mouth with such force, that it was carried out through the gills in company with the water expelled in the ordinary course of breathing. The bend of the hook had embraced the edge of the gill-cover and, without actually having been hooked, the fish was held firmly enough to be played and successfully landed.

A salmon hooked in the back of the tongue hardly makes a fight for it, but comes meekly to the gaff. The only explanation for this I can suggest is the proximity of the heart and of a main artery to this region. The tongue in the salmon is fixed, not free as in the land animals. Nevertheless, it is possible to hook a salmon in the tip of the tongue and for the hook to tear through the tender flesh of which it consists and for the salmon, in consequence, to go free. How often this circumstance is responsible for a fly coming back from an apparently well-hooked salmon is hard to tell—probably not often ; but I am almost sure it does happen at times, because I have seen fish taken that had a split in the tongue unmistakably caused by the bend of the hook having been dragged through the soft flesh at the tip.

The most secure hold on a salmon is undoubtedly in the corner of the jaw, for there deepest penetration can be obtained. A hook fast in any part of the edge of the mouth, either in the top or in the bottom mandible, is usually to be depended on to hold ; but even there small hard bony regions exist into which a hook-point can only be made to enter if considerable force is exerted. When a salmon has been hooked in the point of either the upper or lower jaw, I imagine it followed the fly for some distance and then took it directly from behind. When a hook is stuck fast in the corner of the jaws, it is quite clear the fish has come across at the fly, or has swum on upstream with the fly in its mouth and has turned its head down, before the angler tightened on it (see p. 250 and pl. 51).

§ 9. *Of holding the line.*

Should the line be held while fishing out a cast? Or is it better practice to adjust the check of the reel, so that unaided it shall offer enough resistance to pull in the hook? I have no hesitation whatever in recommending the former in preference to what is known as ‘striking from the reel.’ The check of a reel can rarely be adjusted to be strong enough to draw in a good-sized hook; but fortunately the nervousness this method is supposed to neutralize is easily overcome by practice. Another way of ensuring a delicate touch in tightening on a salmon is to adopt Mr Chaytor’s method of shortening rod (see below).

The method of holding the line I have found most satisfactory is shown in plate 33. It will be noticed how the last three fingers and the thumb control and support the rod; while the line is secured by being passed between the inside edges of the index and second fingers; it is also held very lightly between the tip of the forefinger and the under surface of the cork handle. To include the line in the full grip of the fingers on the rod or to wrap the line round one of the fingers is inviting disaster.

§ 10. *Of shortening rod.*

The alternative way of holding a rod, mentioned above, was first described by Mr Chaytor (*Letters to a Salmon Fisher’s Sons*, p. 24). The general effect is certainly rather ungainly; but the method is far more efficient than the usual one. As soon as a cast has been completed, the lower hand is shifted up the handle, until it is just below the leading hand, the latter then grips the rod at a convenient point near to the lowest ring (see pl. 33). The rod will thus be held near to the point of balance, so that fishing out a cast will be far less tiring, tightening on a fish will be carried out much more delicately, because there will be a tremendous increase in sensitiveness in the rod-point and therefore far less danger of breaking a light gut-cast. By shortening rod in this way, the harsher action of the butt is eliminated and the duty of pulling in the hook is entrusted to the more limber parts of the rod.

It is a very good rule to let the top joint take the strain of tightening on a fish, when the tackle is fine. Mr Hewitt has some interesting remarks on the subject (*Secrets*, p. 28), when he is discussing the safe strains that may be put on very fine gut by a series of light salmon-rods. But whenever you are holding a short trout-rod vertically, in order to put a light strain on the gut, and are using a fly about the size of a large seatrout fly, be sure to put a little force into the act of tightening *after you have felt the fish;* otherwise it is even chances the point of the hook will fail to penetrate far enough. I am thinking at the moment of fishing in comparatively slack water, where there would not be enough current to press on the line and pull in the hook. Much in hooking a fish depends on the force of the stream.

Plate 40

THE EXE, SOMERSET

THIS PHOTO WAS TAKEN ON THE FIRST DAY OF THE SPRING RUN AT THE JUNCTION OF THE EXE AND THE BARBLE

CHAPTER EIGHTEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY *(continued)*

ILL-FORTUNE is the cause and theme of this chapter, since it describes alternative methods of fishing, when the fly has been presented in the orthodox way and has been refused.

If a pool has been fished most carefully without a fish having been raised, you will naturally ask yourself what is the best thing to do : to go down the pool again with the same fly or with another ; or to give the pool a rest and, in the meantime, try somewhere else. The answer entirely depends upon circumstances. Have you control of the whole beat ? Is there likely to be another fisherman coming who will wish to try the pool ? Or can you safely leave it for an hour or two and try somewhere else ? Is there another pool or lodge close by which, in the state of the water, is as likely to yield a fish as the pool you have just been fishing ? Is the present moment a probable taking-time of salmon at this time of year and at this height of the water ? Here are questions enough that you should make some attempt to answer, before deciding upon a course of action. Further complication arises through having to consider whether you have been fishing for a known salmon, or have been searching either the lodges (if you know the pool well) or the water generally for a salmon you think ought to be there. First of all let us imagine you do not know of a definite fish and have therefore been casting ' on spec.'

§ 1. *Upon failing to find a salmon.*

When you have unsuccessfully fished a pool, one of two things has clearly happened : the fly has failed to attract the attention of a salmon, because it is too small or, perhaps, too sombre, or because it has been fished in the wrong way. It often happens that an angler thinks he has covered a pool thoroughly ; whereas his fly, did he but know it, has been ' fishing ' only part of the time. Also, the fish may have been induced to come and have a look at the fly, have been frightened by the glint of the gut, when the sun came out, or have had its attention taken off the fly by the thickness of the cast being too great for the occasion. If I was fishing a river the stock of which I knew to be small, I should certainly expect to pass many hours without a touch and to experience frequently those periods, when fish in the pools refuse anything and, perhaps, do not show. It is even possible that much of this slack time coincides with a salmon's hours of sleep or rest. Whatever the true explanations are, it is certain that the relation of air-temperature to water-temperature has much to do with it.

But to whatever cause you like to assign this inactivity, you will soon discover, if you take note of these things, that there are periods, shorter than you at first imagine, when salmon are not to be taken, offer them what you will. These are certainly occasions when it will pay you to leave the main pool and concentrate on the little-fished parts of the river, especially where there is a lodge shaded by overhanging trees. It is in such places the 'happening' salmon is to be caught, for the fish that lie in the odd places either are not so particular about the times when they 'come on to the take,' or are more easily accessible to temptation, because they are moving up or are resting and are, therefore, more easily brought to the fly, or because one out of the large number of casts a small area is likely to receive will present the fly in an irresistible manner. I can see in my mind's eye certain tiny pools of sheltered water, surrounded by fast stickles ; and more than one salmon, whose close acquaintance I made later, made of these a temporary home and fastness. As a rule, fish that choose such lodges as these are content to remain in or near them and to forgo the doubtful pleasure of cruising in the fast water around them.

I was careful to say that these periods of inactivity on the salmon's part would later on be found shorter than might at first be supposed, because with an increase of knowledge you will fish more expertly, until you have reduced these dead hours to a minimum duration. And, by adopting the new methods of angling, you will find you are able to hook fish on low water far more frequently than you had ever dreamed.

If there was only one more chance of fishing the pool before the arrival of another angler, I should choose the same fly as before (provided I was convinced it was approximately right in size) ; but I should take every opportunity of fishing the pool in a different way from that which I used, when going down the first time. Sometimes the fly would be pulled a little as it came round ; or allowed to swim across naturally ; sometimes the rod-point would be lowered almost into the water, in order to force the fly as deep as possible ; at other times the rod would be elevated, so that the fly fished high and near the surface. Every likely spot would be thoroughly searched. And I should certainly consider whether the best chance did not lie in tying on as a dropper a fly a size or two smaller than that already being used at the point of the cast. If the salmon was lying behind a rock, I should cast once or twice upstream to it ; fish lying in such a position often take the fly presented in that way, which they have refused when it is cast to them downstream. This is not the fault of the fish, but of the current, which pulls the fly very quickly across and at the wrong angle.

If I still had time to fish the pool twice more, I should try one of these two methods. Change the fly to one of the same size but of opposite colour, that is, dark instead of light or vice versa, and fish straight down ; and, if there is no offer from a salmon, replace the original fly and go down again, employing, on this occasion, all the tactics and variations described above. The other plan is to put on a fly, far larger and more brilliant than conditions appear to demand, and fish the pool thoroughly in the hope this will awaken some interest in a salmon or arouse it from its torpor. The function of the large fly is purely provocative ; it is intended to put a fish on the *qui vive* and ready to attack the original fly, which should be tied on again after the large one has done its work.

Continued lack of success is apt to make a fisherman careless. While he is fishing he should be certain the line is clear of the reel-handle and free to run out, if a salmon should be hooked. He ought also to remember that a delicate holding of the line by the forefinger and thumb of the lower hand and a firm grip with his feet on the gravel, so that he has full control of his balance, are essential to sureness in pulling in the hook.

§ 2. *Upon failing to raise a known fish.*

By a known fish I mean one the position of which has been pointed out or carefully described by another angler, or one you have definitely spotted yourself. And the amount of time and trouble you are willing to devote to its capture entirely depends upon whether it is a heavy fish for the water or whether you know of another and equally desirable fish for which you may try, should you not succeed with the first one.

A great deal that has been said in this chapter will appear to the beginner as merely calculations of the chances of getting this salmon or that. The hunter has slots and fumes to aid him, the trout-fisherman has rise-forms and nymphs, duns and spinners. There is nothing as definite as these to guide the salmon-fisher ; he is, therefore, compelled to use whatever means he can devise to help him to success.

Can salmon be roused by having a fly cast over them a large number of times ? If the fly is floating, Mr Hewitt (*Secrets of the Salmon*, p. 90) is convinced that it can, but he is equally certain the wet fly stands the best chance of being taken the first time it is seen, which makes him inclined to agree with the practice of resting a pool. I cannot claim to have had as large an experience of fish the movements of which could be seen through extremely limpid water, but I think six casts, delivered from various angles, are always enough to show whether a fish can at that time be persuaded to rise. The first few casts will, possibly, be placed in a way that does not show the fly to best advantage, or not allow the fly to sink deep enough. On solely practical grounds, it is better to be content with half a dozen casts or so, as it is unusual to be in a position to say, after making these, whether the salmon is still there.

As a last resort, the fly should be changed for one of different pattern ; or a large fly used and then replaced by one of a size suitable to the level of the river. The same tactics should be employed of varying the presentation of the fly and of casting it upstream. But if the fish is known to be lying at the edge of a stickle near the head of the pool or close to an area of faster water in the middle of it, an effort ought to be made to hang the fly in the current and at its *cheek*. This can only be done effectually by mending the cast and by holding the rod-point well over the stream and lowering it, so that the fly moves more slowly and swims well below the surface. Have confidence in your ability to fish the fly properly in these runs, for the speed of the water underneath the waves is rarely as great as that at the surface ; and though a salmon may lie under the swiftest part, it will usually take the fly at the edge of the stickle. Above all, when you are fishing a fast stream, allow the fly to hang below you for ten seconds or so.

§ 3. *On resting a pool and a fallacy thereof.*

There is an idea current that, after you have gone down a pool with the fly and have failed to raise a salmon, you should retire to a very uncomfortable seat, placed especially there or sit on the bank, light a pipe and rest the pool until you have finished the pipe. I do not understand what good that is supposed to do and anyhow it is a sheer waste of time, because sitting on that bench will not bring the fish into the mood to take a fly. On Association waters, where the doctrine is widely preached, this procedure would merely have the effect of presenting your chance of fishing the pool to the next member who happens to appear, for it looks rather selfish to jump up from the ground and rush feverishly into the water, as soon as you see someone approaching! It is, on the contrary, much more sporting to accept the limitations inherent in club-fishing and be glad to have the chance of learning from someone, who may be a more skilful fisherman than you are.

If you have control of the whole of a beat for the day, would this plan of resting the pool then be a sound policy? Ought one to sit by the water and wait for the salmon's mood to pass? It is, in my experience, far more profitable to change the fly than to sit idle until the salmon changes its mood. I mean change of fly in regard to size. A change of pattern I would advocate only when a dark fly is substituted for a light, or a light one for a dark, and otherwise only in so far as it is a means of reviving drooping spirits. The exchange of a Silver Doctor for a Silver Wilkinson will sometimes put fresh courage into a disappointed angler!

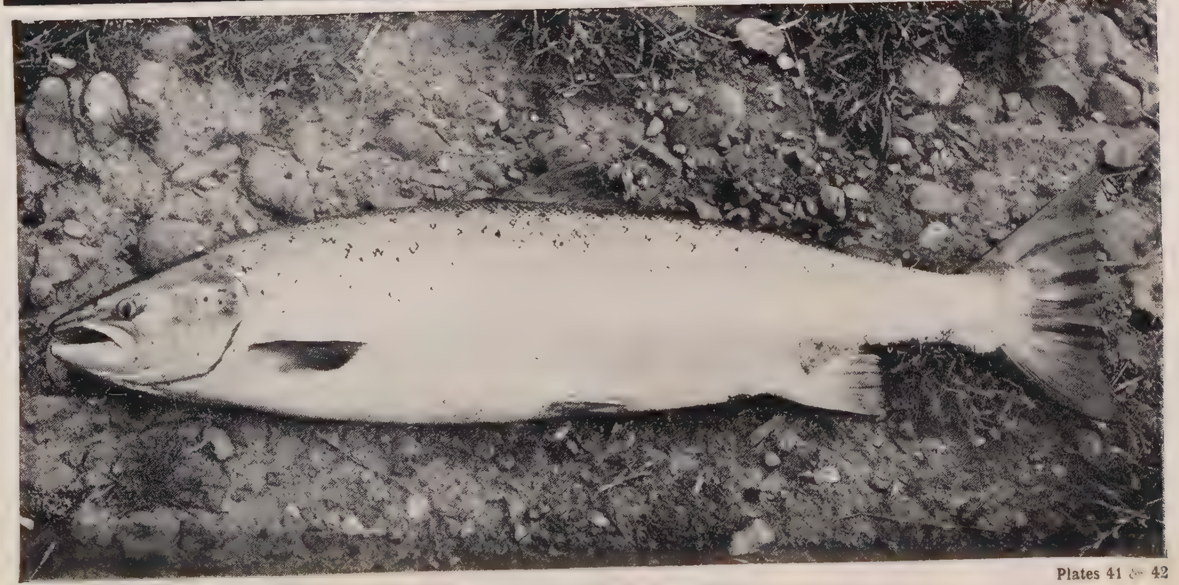
Before you definitely decide to leave a pool or give it a rest, ask yourself whether you have fished it as cunningly as you are capable of doing and whether you have used proper judgment in the choice and presentation of the fly. The question of the right size of fly to employ is very complex (see pp. 200, 226 *et seq.*). Every season I get severe shocks that upset some of my conceptions of the size of fly suitable for a particular height of water. They are, in fact, the exceptions that teach me how dangerous it is to generalize and to cultivate fixed ideas about fishing.

You have fished a pool with apparent thoroughness and have had no rise at all. You leave it, go to a neighbouring pool and soon hook a salmon. Why should this have happened? you ask yourself.

Through many causes, notably the set of the currents and the configuration of the river-bed, one pool is normally more difficult to fish than another and the height of the water also plays an important part. But here is another possible solution.

The angle of light varies from pool to pool, just as the characters of the pools vary. The illumination of a fly is most important and it naturally depends upon the angle at which light falls on the fly. This may account for much.

What would have happened, if you had fished the first pool in an entirely different way? If you had cast the fly straight across to the salmon or to the lodge? Or had cast upstream to it? Suppose you had so varied the direction in which the fly was thrown, that the angle at which light fell on the latter was about the same as in the second pool, would not the fly have been illumined and transfigured to the same degree of attraction? The man has much to answer for who laid down



Plates 41 & 42

the axiom: cast downstream at an angle of about fifty-five or sixty degrees and never straight across or up. Do not believe him. Give up being an automaton. Vary the angle at which the fly is cast. Welcome every opportunity to make experiments. There is far too much covering the water without so much as thinking for a moment what is happening underneath the surface.

On Association waters this cannot always be arranged; there is so often the man behind you. He is sure to think you are selfish for monopolizing the water, while you are trying strange tricks on the salmon. He wants, and naturally, though he may be polite enough to refrain from saying so, to fish the pool as well. Under such circumstances, come out of the pool and give the other man the *pas;* it is quite likely to pay you to do so on difficult days, when salmon are very *stiff* and hard to raise. I have heard it said that the man who keeps the fly the greatest length of time in the water will catch most fish. Is it not far better to say the most successful man is he who is fishing in the right places? Try to discover these and then keep the fly in the water.

To return to the original *motif* of this section. If three skilfully-varied throws (I have allowed an equal number for ill-judged attempts) do not raise the particular fish you are trying for, you can with a clear conscience rest the pool, if you choose so to express what I should prefer to call resting yourself, by changing the venue and presenting the fly to another salmon.

§ 4. *When a salmon appears to miss a fly.*

It sometimes happens that a salmon rises to a fly and either misses it or, at the last moment, turns away from it. The whole of this act may take place under water and only be perceived by the flash of the fish as it turns, or it may be accompanied by the breaking of the river-surface. Occasionally, the salmon goes so close to the fly or to the line that a tug is felt. Full of expectation you raise the rod; but the rod is not bent and the line hangs limply from the point. What can you do when one of these three things occurs?

Many fishermen would tell you to change the fly at once to one of the same pattern (of the same general colouring, I would say, was near enough!) but several sizes smaller. Substitute a no. 1 fly for a 2/0, a no. 3 for a no. 1 and so on. Go back a few yards and fish with the same length of line down very carefully, half a yard at a time. If this does not raise the salmon, come out of the pool and smoke a pipe, while the pool is being 'rested.' This advice is surely prompted by a sort of feeling that the salmon disapproved of the size of the fly first employed.

With the offering of a smaller fly I agree, but I believe it pays far better to assume the fly was missed, which is quite likely to happen in fastish water, and make another cast of the same length and from the same place. Then go upstream a few yards, shorten the line slightly and from there work down again, letting out line, cast by cast, until the fly is once more covering the lie. If this fails, get below and cast upstream over the lodge once or twice. The next move is to try a smaller fly, as described in the preceding paragraph.

In practice, the problem becomes a psychological one. Shall the fly be changed at once? Or would it be better to try different methods of presenting the fly being used before offering one smaller in size? These are the sort of questions that crowd the angler's mind. How he answers himself depends on the way conditions and the type of water appeal to his judgment and whether he can remember the size of fly that succeeded in circumstances similar to those obtaining. If the salmon, for which he is fishing, is lying at the cheek of a sharp stickle and in its attempt to seize the fly comes right into and shows amongst the rough water, he can safely assume it is only awaiting another chance and should, therefore, move up a couple of yards and fish down to it again.

The salmon that clearly misses the fly on purpose (in contrast to one that makes a bad shot at it), swerving or turning off from it at the last moment, or one that rises with a head-and-tail rise close to the fly, calls for different treatment. It is showing its disapproval, not fear, of the size of the fly. Tie on a smaller one of the same general colouring, as mentioned above, retrace your steps, until you are several yards higher upstream, and fish down to cover the salmon; and it is very likely to come again and this time fasten firmly.

There is another way of interpreting the refusal of a fly, namely, that fear is the true cause of a salmon turning away or ' shying ' at the very moment when the lure was about to be taken. This is not really fear of being hooked, but is suspicion, aroused by finding something strange in the behaviour of the fly, by seeing the cast or the glint of gut, or possibly by noticing some unusual image thrown across its *window* (see *Trout Fishing from All Angles*, pp. 61–64), such as that of the angler or of his rod. If you are convinced this is so, by all means leave the pool, until you think the salmon has forgotten the unfortunate shock to its nerves. How long this will last we, as human beings, have no means of discovering; but it is unlikely to coincide with the period allotted by custom, which is the time it takes to smoke a pipe. If you are convinced the salmon has been frightened off the ' take,' no harm can be done by having a few more casts in the same place. Sometimes, especially late in the season, I believe two salmon, possibly paired, often share the same lodge!

CHAPTER NINETEEN

THE PRACTICE OF FISHING WITH THE SUNK FLY (*continued*)

§ 1. *On 'backing-up' a pool.*

AS the river *falls in*, it becomes increasingly hard to fish. You will first notice this slackening of the current in the pools that came earliest into ply after the flood. The sunk fly swims slowly round and the line is drowned in the slack water, which makes it very difficult to control them. Fishing becomes, in fact, a labour ; and, in your natural impatience to make the next throw, you will do all in your power to hurry the fly round. This practice is unsound, because it encourages a habit of not fishing a cast out and makes it hard to get quickly in touch with a fish, after it has taken the fly. In slack and deep water I prefer giving a little life to the fly by holding the rod with the downstream hand, swinging it towards the near bank and taking in a little line with the other hand. The line thus drawn in can easily be shot through the rings in the subsequent throw. There is another method often recommended, that of putting life into a fly swimming in heavy slack water, namely, *backing-up*.

To fish a pool in this manner the angler goes down to the tail and starts casting across and down (and sometimes straight across). While the fly is coming round, he slowly moves up the pool two paces. This puts a little tension on a line, all but drowned in the sluggish stream, and imparts some life to the fly. But this advantage is very slight, compared with the grave disadvantage of having to put the line over the back of a fish, before it has had a reasonable sight of the fly. One has to agree with Andrew Young when he says a practice is indeed reprehensible that 'exhibits the splash of the line to the fish when they should only see the fly.' But as backing-up a pool is a doctrine widely preached, I am discussing it at some length, so that a fair opinion about it may be formed. Personally I have not found it of any value at all and prefer to solve the problem presented by these conditions of water by the method described on the next page.

Ephemera (*Book of the Salmon*, p. 60) says the logical way of fishing a pool, if the angler is proceeding upstream, is to start at the tail and to fish up. This is quite independent of the height of the water and is recommended by him for days when the river is in good order. He definitely prefers to start at the tail, because a fish, when hooked higher up the pool, will run downstream and disturb those lying in the lower part of the water, which he considers the best and should therefore be searched first of all. Salmon often go downstream directly they realize they are hooked and fight over a wide area ; the lower part of a pool may at certain times of the year and at certain heights of water be the best; but I have yet to find evidence that the fish lying there are disturbed by the ensuing fight. My own experience encourages me to think it merely raises their curiosity.

In a small, deep and gin-clear rock-hewn pool on the Dart, I hooked one out of the score of salmon lying in it. The fish vigorously contested the fight and prolonged it far beyond the usual time allowance, viz. a minute to the pound. But, when I leant over to gaff it, I was astonished to see several other fish following it, even right up to the gaff, so consumed were they with curiosity to know what in the world had befallen one of their companions, that he should behave in so unorthodox a manner. To see a salmon turning and twisting, jumping and boring before an audience of salmon, all of them plainly exhibiting unbounded surprise that such things could be, was irresistibly humorous. It was just like one of the situations that inspired the author of *Uncle Remus*.

I know, however, what *Ephemera* has in mind and so does any trout-fisherman on chalk or on limestone streams, who has often seen trout scattered by the upstream or downstream rush of one that has been hooked. Yet I have frequently seen two, three and even four salmon taken from the same area of water, salmon already lying in position, not travelling fish that were caught as they arrived successively in the pool, no one of them having witnessed the battle of the fish preceding it. And there is a great deal more that could be said about the folly of choosing to play a fish near to the tail of the pool and about the wisdom of getting below a fish that is being played.

§ 2. *Of surface-fishing in slack water.*

Early one afternoon in July, the current in the pools being on the slack side and there being a gusty cross-river wind that often made casting very uncertain in its length and direction, I grew tired of trying to tempt a salmon lying close to the only area of rippled water I could find. I leaned my rod against a hazel bush and went to have a look at the pool below. On the grassy bank there lay a couple of salmon and in the pool I found the parson hard at work over a well-known lodge and fishing it in a manner quite new to me.

He had gone into the water as far as his waders would allow and was energetically throwing a short line, little longer than the length of the rod, viz. fourteen feet, across and a little up, but sometimes upstream at as great an angle as sixty degrees. As soon as the fly touched the water, he started slowly raising the point of the rod, until it was pointing upwards at an angle of roughly sixty degrees. It was lifted just fast enough to keep the fly travelling across the surface of the water or at most a bare inch beneath. He was clearly very skilled in the way in which he controlled and manipulated the movements of the fly; he exercised great delicacy of touch, while he was raising the point of the rod, and also when the rod had been taken up, as far as it should be allowed to go, and it only remained to take in the last two yards of line by gathering them deftly in the downstream, in this instance the left, hand. This trick of keeping the fly near the surface was reminiscent of Crosfield's method of 'pulling through.' I noticed with what ease he drew the fly towards him, now across so that it finished above him, now across and below.

It looked to me by far the most attractive form of slack-water salmon-fishing I had ever seen, demanding, if the fly were to be compelled to do the angler's will, much deftness in handling and, I am sure, much self-restraint on the salmon's part to resist temptation ! Imagine the underwater view of a fly thus drawn across the surface. As the fly sinks a little, out flash the tinsels and the contrasted shades, the blacks and whites, with which it is dressed ; while light radiates from a hundred points and facets, as the surface is torn and bent. How much skill this way of fishing demands I had yet to learn ; but I saw very quickly how the wind that had hindered me in the pool above was giving great help to the parson.

In the stretch he was fishing the wind blew straight downstream, because the river took a left-angled turn in flowing between our respective stations. A moderate upstream breeze would have served equally well, because either it or the wind, as it blew that afternoon, would partly support the sagging line and have driven it to leeward, and the fly would have been prevented from sinking by being dragged along the top of the water. Whenever the wind became strong, he was thus saved much of the trouble of keeping the fly at the surface ; but he had to regulate the angle at which the rod was held to make sure the fly was not carried clear of the water.

When the parson had taken a third salmon from a pool I had thought far too slack to yield even one, he left the water and at my request discussed the method very frankly and in detail. He used a light line, one slightly thicker than a no. 3 Kingfisher, a long rod, preferably with a flexible top, and a sombre fly dressed on a light sharp-pointed hook, no. 1 to no. 3, were essential to success. A heavy line would sag too much, a powerful rod would be too harsh to compensate for a sudden snatch of a salmon at the fly ; while it was obvious why a fly light in weight should be better adapted than one of the ordinary type, the virtue he found to lie in the modest sad-coloured patterns just went unexplained. His favourite pattern was Turkey Jackson. A wind, up or down the stretch, made things much easier ; but, as a salmon will follow a fly almost up to the angler's feet, it is still possible to fish effectively, when a contrary cross-stream breeze is blowing ; but this is the least favourable wind. I have a hazy idea he was using a cast of medium-sized artificial gut on the ground of freedom from knots, which would scratch the surface of the water, and of the comparative absence of glint ; but I may have added this refinement later, when I adopted the method for my own use.

Two words of advice. Tighten evenly and firmly, when you feel the pull of a salmon or as soon as you see its head has turned down again after taking the fly. If you tighten a moment earlier, you are very likely to snatch the fly out of its mouth before the latter has been closed. If a salmon comes very near to you in following a fly, go on drawing it along the surface of the water as though there were no fish behind it. Keep a tight rein on your nerves and remember the fish is probably too engrossed in its speculations about the fly to notice you, unless you move incautiously or cease drawing the fly. A salmon will generally turn away as it nears the shallows and, if it has not been frightened, is like to come again at the next throw.

§ 3. *Of surface-fishing in fast water.*

There is another way of drawing a fly across the surface of the river, which has been described by Mr Hewitt (*Secrets of the Salmon*, 1925; p. 125). It is used by him in fishing stickles and the ruffled water at the heads of streams flowing into pools; and, from internal evidence, I judge he employs it when the river is low and clear. I have had experience of hooking salmon at night when I was using the bob-fly described on page 260 of *Trout Fishing from All Angles*. In times of low water I have attracted salmon lying in a run by drawing a ‘ fly-oreno ’ across it and have raised a fish on two occasions during a spate by dragging a fly, as large as 2/0, across the rapidly flowing neck of an 8-shaped pool. I believe, therefore, this method has a far wider application than being reserved for low-water conditions.

Let us see how Mr Hewitt sets about fishing with a ‘ drag and dropper.’ He does not mention the length of the rod, but I imagine he uses the one fourteen feet long with a flexible top recommended by him on page 30. To the end of the regular gut-cast he fastens ‘ a fine end about four feet long and on the end of this ties an old fly which is worthless and has the hook broken off.’ Where the two thicknesses of gut join a three-inch gut-length is attached, to which is fastened a small fly. This fly is then oiled and allowed to dry. About the size and pattern he is not explicit; but, if an analogy with dropper-fishing for trout be accepted, a wingless fly dressed with a hackle of first quality ought to prove successful. The hook-shank of the larger fly is to be broken off just beyond the tag at the top of the bend, for its only function is to act as a drag and to hold the cast taut, so that the dropper-fly shall skip lightly over the ripples and waves, as it is drawn inwards by the raising of the rod-point. The bend is removed to avoid any danger of fouling a snag, when a salmon is being played.

Mr Hewitt tells us he stands at the head of a stream, casts across it and allows the fly to come round at the pace of the current; but, as the rod is held high, the dropper-fly is kept at the surface and comes skipping over the ripples in a most attractive way. ‘ The salmon will rise for the dropper like small brook trout and make a great splash ’; and he goes on to say it is difficult at first to pull the hook home, ‘ as many come short and they make such a show that the angler nearly always pulls the fly away from them too soon.’ The underwater effect of this dragging fly is probably very similar to that produced by one fished in the parson’s way (p. 198).

§ 4. *Concerning the size and style of a fly.*

As the river grows clearer and decreases in volume, the salmon-fisherman is faced with the task of trying to solve one of the hardest of problems: the choosing of the fly. What is the right fly to use to-day? is a question you will often hear expressed at the waterside. This really means what pattern and what size of it is best for the height of the river or, it may be, for a particular kind of day, bright, dull, or overcast. I would certainly advise every learner to avoid this compound question and ask himself simply what size of fly proved successful the last time the river was running at the same height and care nothing at all about the pattern he selects. This is an occasion when the value of a water-gauge is shown (see p. 154). A dark fly will often appear to be more appropriate to a given pool than will a light fly ; while in another place fish are taken on light flies alone. But the obvious difference between a dark and a light one is far too often allowed to obscure the subtle and more vital distinction, namely, the style in which the fly is dressed. Quite apart from the weight of the hook and the manner in which the rod-point is held, style plays a great part in encouraging a fly to sink or to swim. Again, the angle at which the light falls on the pool, alters the character of the fly so much, that it is foolish to lay down any hard and fast rule about the right pattern to use, dark or light.

A stranger with only his experience on other rivers to guide him will have to rely on local advice and on his judgment of the relation borne by the present level of the water to that of a normal spring, summer or autumn. It is often possible by searching the odd corners of the river-margins to find evidence in the shape of a normal line of vegetation. If, for instance, the water is running over grass and flowers you know to be completely terrestrial in habit, you can safely assume the river is well above the normal level for the time of year. River-flotsam lying in lines along the margin of the stream give a fair idea how the level of water is related to the peak of the flood, as surely as a waterhen's nest and the skeleton of a lamb perched high in the trees, fourteen feet above the summer height of the river, was proof of what the Welsh Dee could do with melting snow and a strong west wind down the length of Bala to help it. Take every hint Nature gives you. This way are great fishermen made.

After the first two or three days of a fishing-holiday, an angler will have got into his stride. He has either caught a salmon or been present when someone else landed one and has found out the right size of fly for those occasions and probably some of the places where salmon are to be expected under similar conditions. He ought to be most scrupulous in making a note of the river-level on the opening day, so that on the mornings of the days succeeding he will be able to pick up the thread where it was dropped the evening before. He will thus be able to form an idea where the salmon are lying, when they will be likely to take and what is the best size of fly to offer them. I have really expressed this far too simply, for there are at least two other considerations one can hardly afford to ignore. The character of the water is one ; it may be deep and still, be broken and rough, or be a glassy glide ; the pool may be shaded or lie out in the open under the merciless eye of the noontide sun at his summer solstice. And there is considerable chance of error, if the calculations of the right size of fly to employ have been based merely upon information received from a successful angler on the other side of the river. There are many places and occasions where the choice of fly should be a large dark one, for example, although the man opposite has just landed a salmon on a light fly, several sizes smaller than the one you are about to use. It depends on the light, the depth, the speed of the current and the way the salmon are lying. Wherever you are fishing and whatever be the difficulties surrounding you, do all in your power to *cultivate a sense of the right size of fly.*

§ 5. *Of the proportions of rod, fly and gut.*

Very often the size of the fly and the thickness of the cast are closely connected ; equally so has the flexibility of the rod-point a bearing on the gauge of gut it is safe to employ. It is unreasonable to expect fine gut to be strong enough to pull in a large fly or one with a rank barb or with a blunt point. While a small fly knotted on a heavy cast swims stiffly and ceases to be responsive to minute currents and tiny impulses, which are the chief sources of its power to attract. On the other hand, fine casts demand more sympathetic treatment than is extended to them by ordinary and rather harsh rod-tops.

When you are sure conditions will best be served by employing gut of fine gauge, take out with you a rod, the top joint of which is flexible enough to enable you to tighten firmly on a salmon without running the risk of breaking the cast. If the need to use light gut arises, when the rod you have chosen that day is a little too strong for the gauge of gut suitable to the conditions and to the size of fly, keep the rod-point well up and take entirely on the top joint the strain of tightening on a fish and of playing it.

In trying to understand the whole problem of the mutual interdependence of gut, fly and rod, it is a great help to view it progressively. In the early days when the river is ‘ fining down ’ after a flood, the fly is large, the cast stout and the rod long and powerful. As she drops and with the approach of the water towards the crystal clearness of low summer-level, the tackle employed will have to be lighter and the fly smaller ; and the reduction in strength of the gut, when a really light gauge is used, will call for greater flexibility in the rod-point. At this stage, the long rod can be left at home and only the shorter taken, one about eleven feet in length, or even a ten-foot trout-rod and the lightest of tackle. The heavy stream that earlier made it imperative to employ stout gut and a powerful rod, in order to bring a salmon alongside, is no more. Light tackle will serve. And a salmon will play better on fine gut and soon tire itself out. The river is now low and very easy to wade ; this relieves the angler of much anxiety, for, if a salmon should go downstream, he will nine times out of ten be able to follow it and play it out in the pool below.

So tackle progresses in delicacy and lightness as the river drops—from the heavy grade of gut and 4/0 flies of floodtime to light seatrout gut and seatrout flies or miniature salmon-flies and, when the water is dead clear, to a cast as fine as 2x, or even 3x, provided a brand new cast is used every time, and trout flies as small as no. 0.

Often two rods will have to be taken, if you are to make the most of the opportunities offered. The salmon of the open pools can be fished with a light rod, a fine cast and a small fly ; but one lying at the edge of rough water or in a stickle will tolerate thicker gut and a fly several sizes larger. This is very fortunate, because a heavier fly swims across at a greater depth than one of the size suitable for the more placid parts of the pool. For some years past, I have made a point, before starting to fish a run, of changing the cast I was using to one somewhat thicker and tying on a larger fly.

Take to light tackle as soon after the flood as you acquire a feeling of confidence in the former. You will hook more fish, have more fun with those you hook and bring them to the gaff just as surely, perhaps more speedily, than you would on heavier gear. Provided the rod-point is adequately supple, a well-hooked salmon held by good fine gut is quite easy to play to a standstill. Of the scores of incidents related to me of playing a salmon, which had been hooked when the angler was fishing for trout and eventually got away, very few losses were due to a fair break of the gut. The drawing of a knot in the cast, the slipping of the hook from its hold, or its straightening, a snag, or the decision of the salmon to go downstream and thereby strip all the line off the reel, are the common causes. The breaking of the gut is, under these circumstances, rare, unless it is old or much worn.

CHAPTER TWENTY

THE PRACTICE OF FISHING WITH THE SUNK FLY (*continued*)

§ 1. *Concerning good manners.*

THE claim of good manners upon a salmon-fisherman is twofold in character: thoughtfulness for the man who is fishing after him on his own bank and consideration for the man opposite. I write about manners with some diffidence, because it is assumed they go hand in hand with the good-fellowship of the waterside. But alas! there is not always enough of the give and take in salmon angling that can make perfect the joys of fishing. Etiquette, as in other sports, is largely concerned with technique and consists of unwritten laws and of customs which are designed to make salmon-fishing more pleasant for everyone.

Whatever information it has been your good fortune to garner, place it freely at the disposal of others. Tell the man who is going to follow you down a pool, if he should ask you for the information: where you have seen a salmon showing, whether the water is rising, falling, or steady; whether you know of any salmon having been taken on that day, on what fly and in what pool; and give him ungrudgingly anything else in reason that, under similar circumstances, you would find useful, were you the seeker or a stranger to the river. On Association water a fisherman's clear obligation to the man who comes after him is to fish in such a manner, that the pools are disturbed as little as possible. In a general way, he ought to regard the river as a thing in trust, take from it in pleasure only his fair share and leave the principal, as far as he is able, intact. The extent to which he should consider the man opposite depends very much on the width of the stream, as it is very churlish to go into the water and begin fishing at the same time as and opposite to an angler on the far bank, unless the river is so broad, that you cannot possibly interfere with one another.

The whole question of when it is permissible to use a minnow or a spoon is, on most rivers, left to the anglers to settle between themselves. I know of stretches, owned or leased by Associations, on which it is definitely forbidden to use anything but the fly, after the level of the water has dropped below a certain mark on the gauge. If this rule is only to be obeyed by making a pilgrimage (of perhaps as much as a mile) to one special pool on the beat to look at the mark there, I should be much surprised at anyone taking the trouble to comply; something ought to be placed in every pool to indicate the height of the river and to give anglers some idea of the times, when it is permissible in any particular pool to use the spinning-rod. With one indicator a false situation is created, because a level that applies to one pool may be unfair on those who wish to spin in another (see p. 455). The best plan is to leave the decision in the hands of the fishermen themselves; but the existence of a mark is, on club waters, justified to a certain extent, as it removes a potential cause of friction.

There is often a rivalry between those who fish fly only and those who believe in using fly, minnow, spoon, prawn and, in some instances, worm, according to the conditions present at the time. The chief arguments against the use of the spinning-rod run thus. Fish that have seen a spinning lure, or a prawn, and have refused both of them will have been frightened, so that they will not look at a fly for a considerable length of time afterwards. I am sure there are many anglers, besides myself, who could bear testimony to the falseness of that statement. The other is the suggestion that a salmon hooked on a fly fights far better than does one taken on a spinning-bait or on a prawn. This claim is hard to believe, especially when it is advanced so frequently by men, who religiously fish fly only and possibly have no skill whatsoever in spinning or in prawning. But this class of fisherman is infinitely to be preferred to that composed of men, whose sole delight is in the use of the spinning-rod and who even go to the length of using a minnow, when the water has come into perfect trim for fishing with the fly. Under such circumstances, it would surely be more courteous to offer any fly-fisherman present priority in fishing the pool, to take advantage of, if he desire it.

I love fly-fishing above all; but I should be among the last to deny the effectiveness of spinning, prawning, shrimping and worming and, under certain conditions, their possible superiority to fishing *with the sunk fly*. Every lure has its rôle to perform, although it is sometimes most difficult to assign to any one of them conditions most favourable to its employment.

On æsthetic grounds alone, fly-fishing is the most delightful of all the methods. There is something extremely soothing in the rhythm of casting and in exercise of the delicate control required in making a long throw neatly and without splashing. The pleasure derived from making a long cast in spinning is much like that which the golfer experiences, when he executes a really long drive from a tee or a perfect wooden or iron shot 'through the green.' While there is a delight in casting, there is also a danger in the deft throwing of the fly or of the lure becoming an end in itself; so that the true reason for it all, namely, the catching of fish, becomes partly obscured.

When you take your turn to fish a pool on Association water, wade in carefully, so that the ripples due to your entrance are too gentle to disturb salmon lying in the neighbourhood. Fish are more easily disturbed by the vibration set up in the water by an angler striding heavily into the river, or by the scraping of nailed brogues on gravel or on rocks, than by anything else he may carelessly do in the course of fishing.

Very often it is only possible to search a wide pool thoroughly, if it is fished first of all with a short line, then with one of medium length and lastly with a long line. Thus the pool is divided longitudinally into two or three areas or zones, all of which ought to be fished in turn. If you come to such a pool in the early morning and happen to know it is virgin water, make a point of casting into the nearest area on the first time of going down. The more distant parts will thus be undisturbed. This is far and away the best policy from your own point of view and the fairest thing to do on club waters, where it often happens another rod is waiting his turn to fish after you.

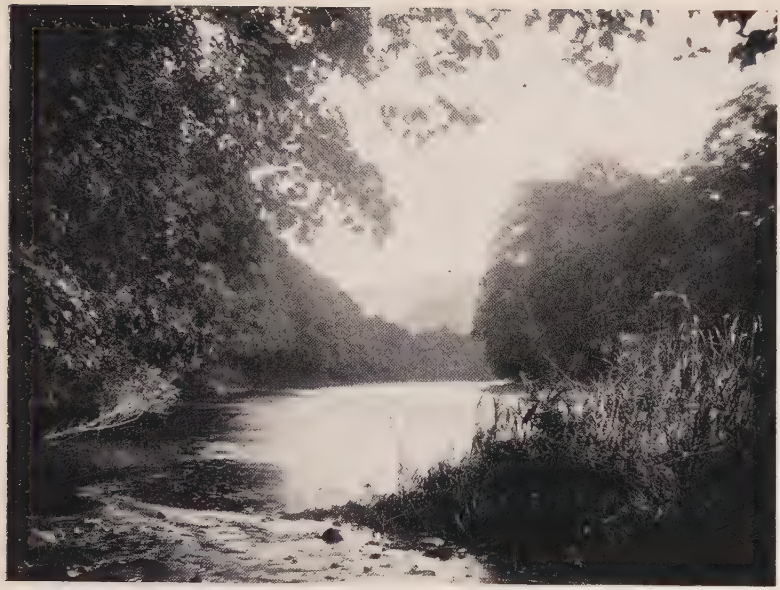
Move down the pool two steps before every cast, but never during the time when the fly is swimming round. Be sure to keep this rule most strictly, if there is someone who wishes to follow, even though a salmon breaks the surface a yard or two above the place where your fly has alighted. On club waters it is considered very unsporting to go back a few paces and fish again a small area of water, when there is another member sitting on the bank eagerly waiting for you to move far enough down the pool for him to be able to start *and be clear of your fly in the back-cast*. I have also heard it laid down that a fisherman should not change a fly without coming out of the water ; by doing this he is held to have forfeited his turn. This is absurd and out of keeping with the spirit of angling. If a man wishes to change a fly, when he is half-way down a pool, there is no valid reason why he should not be allowed to do so ; and to insist upon him leaving the water is to increase the risk of it being disturbed. If he comes back to the bank, so that he can free his line, when it is caught up in the bushes during a backcast, or for any other purpose, what objection can be raised to his returning to finish the pool, provided he resumes at the same place ?

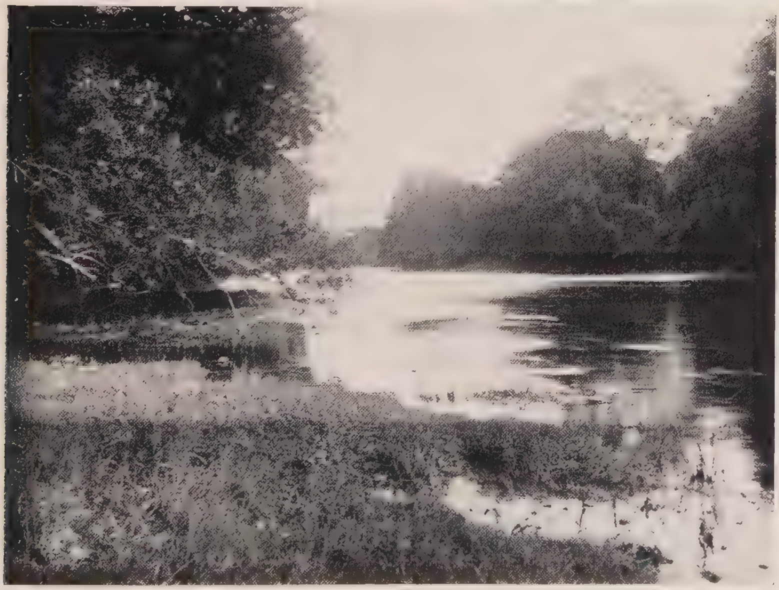
When an angler starts fishing half-way down a pool in front of another, the latter who has a prior right is quite justified in asking the intruder to come out and wait his turn to fish, until he is out of range. If you are fishing behind another man, always keep at a distance great enough to prevent any doubt arising in his mind that he can touch you in his back-cast. It is safer for both of you, because he is very apt to be baulked in his back-cast, if he has even the smallest suspicion you are close behind. The man, who is casting, has the right to expect all clear at his back, that is, as far as anglers and onlookers are concerned.

Whenever one of two, fishing a pool at the same time, hooks a salmon, the other ought to reel up and make for the bank with all speed, put his rod aside and be ready with gaff or help in any form, if he be asked for it. Do not offer to gaff a salmon for a stranger, unless he requests your assistance !

As far as possible extend to anglers on the other bank courtesy equal to that you show to those on your own side. To fish any but a wide pool at the same time as those on the bank opposite is to risk the line fouling. There is only one rule laid down to govern the relations of two riparian owners opposite one another. If you own the fishing on the north bank and I that on the south, how can we enjoy our rights without interfering with each other ? The arrangement that neither of us is to cast beyond the middle of the river is impracticable and would entail the loss of part of the area. It is best, therefore, to make an agreement that you shall fish the whole width of the river up to my bank and for me to cast as far as I can under the northern bank, provided neither of us, in so doing, turns and faces our own side. In short, we fish each other's half of the river ; and it is a matter of etiquette to observe this good working-rule loyally.

Here is a summary of the foregoing. Never enter a pool in front of a





Plates 43 & 44

WELSH DEE: TAYLOR'S POOL (GLYNDWR LENGTH)

A PERFECT SALMON-POOL ON GOOD AND ON LOW WATER, IN WHICH ALL FISH LIE CLOSE TO THE LEFT-HAND BANK.

WELSH DEE

THIS SHOWS A FLAT FROM WHICH IT IS POSSIBLE TO TAKE FISH IN TIMES OF SPATE, WHEN THEY ARE RESTING; BUT IT IS WISE TO HAVE A THOROUGH KNOWLEDGE OF THE SCOURS AND PIKE-HOLES.

man. Move down two steps before every throw when another fisherman is waiting to follow you. Do not spin a pool, when another is wanting to use a fly. On thinly-stocked lengths be content with one fish, leave the regular pools for an hour or two and try to catch a salmon in the more difficult and little-fished places. When you are fishing a river the banks of which belong to different men, cast as far across as you wish, but do not turn towards your own bank and then continue to fish.

§ 2. *Of wading, especially in strong and swollen waters.*

In an unknown river, always use a staff when wading ; if, also, the river is in high flood, do not wade at all. The depth of clear water is often very deceptive. On the other hand, the ruffle of the water due to the wind or mud-staining during the early days of a spate may hide pike-holes, knife-edges, or difficult rocks, the presence of which you could not suspect. A series of knife-edges is the most treacherous form of river-bed you are likely to meet. The water has, in past ages, cut through a system of laid rocks, thereby exposing the edges of the *laminæ*, which are most dangerous when they are canted obliquely downstream and invite a man to step on them, but allow him no foothold to prevent him sliding off into deep water. Further, it is characteristic of these rocks to be undercut. If you are wading out into a river and encounter a band of rocky bottom covered by little more than shoal water, exercise the utmost care at every step and use a wading-staff to help in sounding the depths all round you. The presence of cleft rocks or boulders, in the gap between which it is very easy for your brogues to slip, is another danger, especially when there is a strong stream pressing at your back, or when a boulder to which you have entrusted your weight betrays you and rolls over. I have been unable to make up my mind which feature of the middle Spey I disliked the more : the boulders that held my brogues firmly wedged, as though in a blacksmith's vice, so that I floundered in the water and at times almost sat down, or the washing away of the sand and fine gravel from under my feet, while a treacherous current conducted an insidious attack by pressing steadily against the back of my knees in the hope of lifting my legs from under me. The force of a river is one thing, but the part of the body where it presses is quite another ; and under the knees is the very devil !

I have been told of an Irish gillie who used to take his man completely in charge, put him into a strong turgid stream, until it reached almost as far as the top of the waders, and walking beside him on the bank directed precisely where he should put his feet and ended by saying, ' lift your right (or left) foot as high as you can and step on to that ledge.' Water-knowledge such as that few of us can hope to acquire, even on a river with which we are extremely familiar, unless it be a rocky one and therefore unchanging in character and not susceptible to scouring. But it is worth while taking a lot of trouble to memorize the depths of the water at given river-levels and be able to have exact mental bearings of submerged rocks and of sudden depressions in the bed. Much of this knowledge is good for the season only, perhaps for less than a month. A great flood comes down and many of the sandbanks and gravel-beds that used to serve as convenient ' whalebacks ' surrounded by deep water are carried away and are often piled up where there was formerly a scour. And wherever you discover some radical alteration in the river-bed, remember to tell other anglers of it; neglect to do this might cost a life.

Sometimes a good knowledge of a river makes it possible to wade into and fish a pool in floodtime that, from soundings with the foot close to the bank, appears far too deep. There is a scour near to the bank, but beyond it there extends downstream, parallel to the bank, a 'whaleback,' along which a fisherman can wade in safety. But should he wish to come ashore to adjust tackle or to play a salmon, he must remember not to strike straight across the deeper portion behind him; otherwise he will be sure to ship some water over the wader-tops and possibly be washed over. The way out of the water is downstream along the 'high ground,' until he reaches the 'col' connected with the bank (see fig. 66).

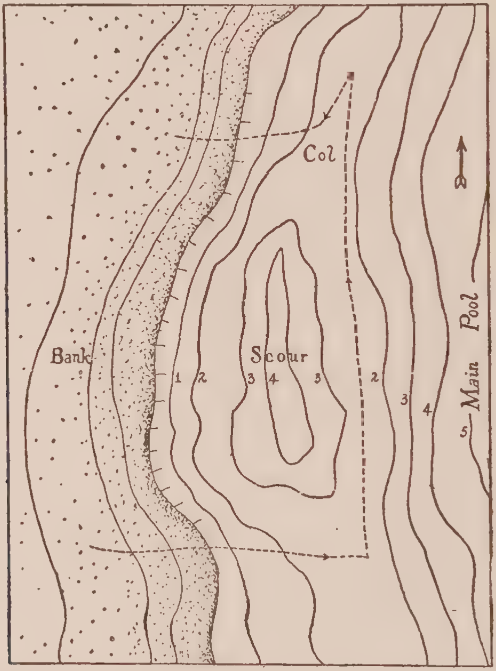


Fig. 66.

The dotted line denotes the track of the wader. To come into the bank across the scour is to ship water over the waders and perhaps to invite disaster.

There is little point in wading out to a greater depth than will assist a fisherman in covering the salmon-lies efficiently and with greater ease. The whole object of getting into the water is to clear obstacles in the back-cast and to cover a fish without using a long line, or one that is too far off to reach from the bank, even with a long line; it enables an angler to fish more effectively and often to present a fly in several different ways to the same salmon. Scrope is most insistent that no one ought to go into the water deeper than the fifth button of his waistcoat ; but that is a little too deep for most of us, even in armpit waders. There is too much risk of being unsteady in water of such a depth and, if there is a strong stream flowing, of being pulled over should a salmon take the fly violently. When you must go into the river really deep to reach a lodge and the water is heavy, button up in an inside pocket any valuables you may be carrying or secure the flap of the pocket with a pin. And then lean against the solid flow of water, so that viewed from the bank you give the impression you are almost sitting on it. Wading deep in a backwater or just out of the main current is accompanied by another danger. The water swells up and down in sympathy with variations in the pressure of the current ; your body is apt to sway backwards and forwards under its influence ; either you are forced on to tip-toe in an attempt to regain your balance, if only for a second, and then you lose it entirely ; or, wading out to a safe depth on the ebb of the swell, you are caught by the rise and are swamped.

During the first two or three days of a flood, much *débris* comes down and you will probably think it barely worth while fishing, until the river is clear of it. The rising water carries a short distance, and a quick fall in level leaves stranded, many derelict branches, as large as saplings, that a more prolonged flood would have carried seawards ; and a succeeding flood completes the work. It needs but a moderate rise in level for the river to bear down the flotsam left behind ; and this arrives in the lower reaches, at a time when the water is beginning to fall. The fisherman is thus taken unawares and may be struck in the back by one of these large branches, before he has any reason to expect the danger. I have had two narrow escapes from being knocked over by stray trees floating down and have made a habit during a flood of occasionally looking upstream for their approach. Also, look out for ice floes during springtime fishing.

The crossing of a river, when it is running high, demands much courage and experience. Do not attempt a passage unless you have a staff or a stout stick cut from out of the hedgerow, to act as a prop on the lee-side of your body ; and it is foolhardy to start, unless you know approximately where to expect the deepest part of the crossing. What chances, after all, will you have of getting across, if you find yourself compelled to get on to tip-toe (a fatal thing in fast water and when the bed is uneven or rock-strewn) and the worst part is still to be reached ? When the wise man finds this happening, he turns back, seeks another ford, or gives the venture up. While you are crossing, turn the side of the body to the force of the stream and work slightly upwards, as this will allow you to lean against the water and increase your steadiness ; only move one foot when the other is *firmly* planted. If you have an inexperienced or weaker companion with you who wishes to cross, wade just above him with your inside arms across each other, so that your body deflects the full force of the current and, if no staff is available, instruct him to carry the rod horizontally in both hands to act as a balancing-pole.

Take great care as soon as you have traversed a strong current and are entering a zone of quieter water. Your foot apparently weighs so little in water, that with the resistance of the stream gone you are, in taking a step, apt to kick out rather violently and, if your foot strikes a big stone, over you go !

Get out of the river as soon as you are able, after hooking a salmon, unless, by so doing, you would lose command over it, should it decide to go towards a snag ; but standing on the bank when playing a fish is the best policy, nine times out of ten. There is no fear of tripping over a stone, as you move up and down in the course of the fight ; it is a simple matter to walk down and get below a salmon that is usually quite willing to be supported against the stream ; and, if it leaves the pool, you are, when on the bank, in a better position to follow it than you are in the water. It is always difficult to pick your way in a hurry out of a stony river. In times of high water, there is a real risk of an angler being towed downstream if he disregards this injunction and attempts from where he was standing in the river to play a fish. I saw this happen once to a man who, after hooking a salmon, was too obstinate to take any advice. The fish ran downstream ; the angler hung on so tightly, that he was forced on to his toes ; the current gave him a heave from behind ; he was compelled to break into a sort of trot and finally he lost his balance completely. It was a great pity I had to gaff him out by the seat of his waders. I tactfully departed from the scene, before the storm broke ! And the fish had the good sense to do the same.

It is simply asking for trouble to attempt to wade over slippery boulders, unless the nails in your brogues are long enough to give you a good grip (see p. 108). Hob-nails wear down and are kicked out very easily. Be sure, therefore, to have them replaced.

Enter the river deliberately and as quietly as you can. The ripples that radiate from your legs are surface indications of the vibrations you are sending out to all the salmon in the neighbourhood. When once you have arrived at the depth at which you have decided to start fishing, move your feet only between casts. Make a note of the most convenient points at which to enter and leave the water in different pools ; for if it becomes second nature to you to enter the river at a certain place, you will be able to follow the most advantageous route, even in high water, and your progress will be easy, because every step will be familiar. In wading down a strange reach beset with trees, a fisherman ought to take an occasional survey of the bank behind him and discover the most expeditious way of getting out of the river, if he hooked a salmon, and how he could best gaff and land it. In some places, he will be forced by the closeness of the trees to one another and by projecting branches to remain standing out in the river and there play salmon, as well as gaff it. He will then have to carry it on the point of the gaff some distance, before he can reach a gap through which he can climb out on to the bank. All of this is quite easy if it has been thought out beforehand.

It is very bad practice to wade, when no wading is needed, and especially to wade right on top of salmon. I have often noticed anglers, in certain pools well known to me, wading down a pool along the edge of which fish are wont to lie. In such places, do not enter the water, but, first of all, search the nearest zone of water by casting a short line from the bank. Work down the pool in this way and then enter the water and fish the remaining area.

I have frequently fallen into a river, have had my waders full of water and had to swim for it. I did not encounter any difficulty whatever, although I am far from being the exceptionally powerful swimmer a

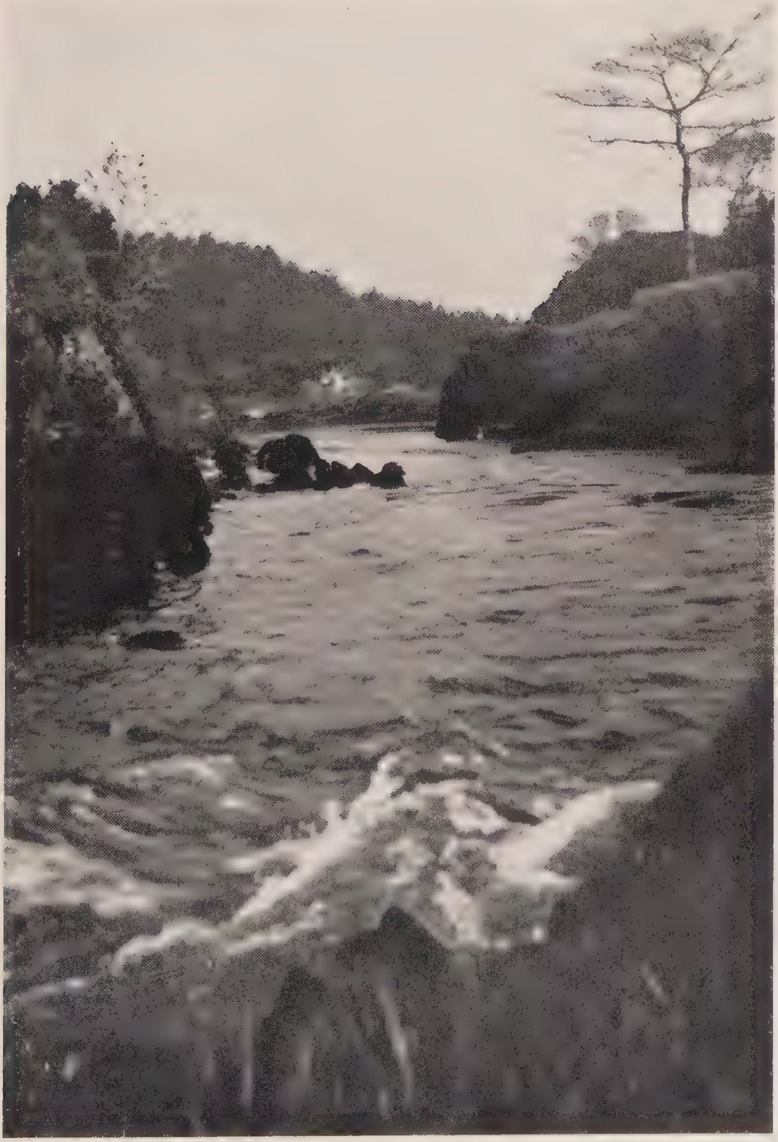
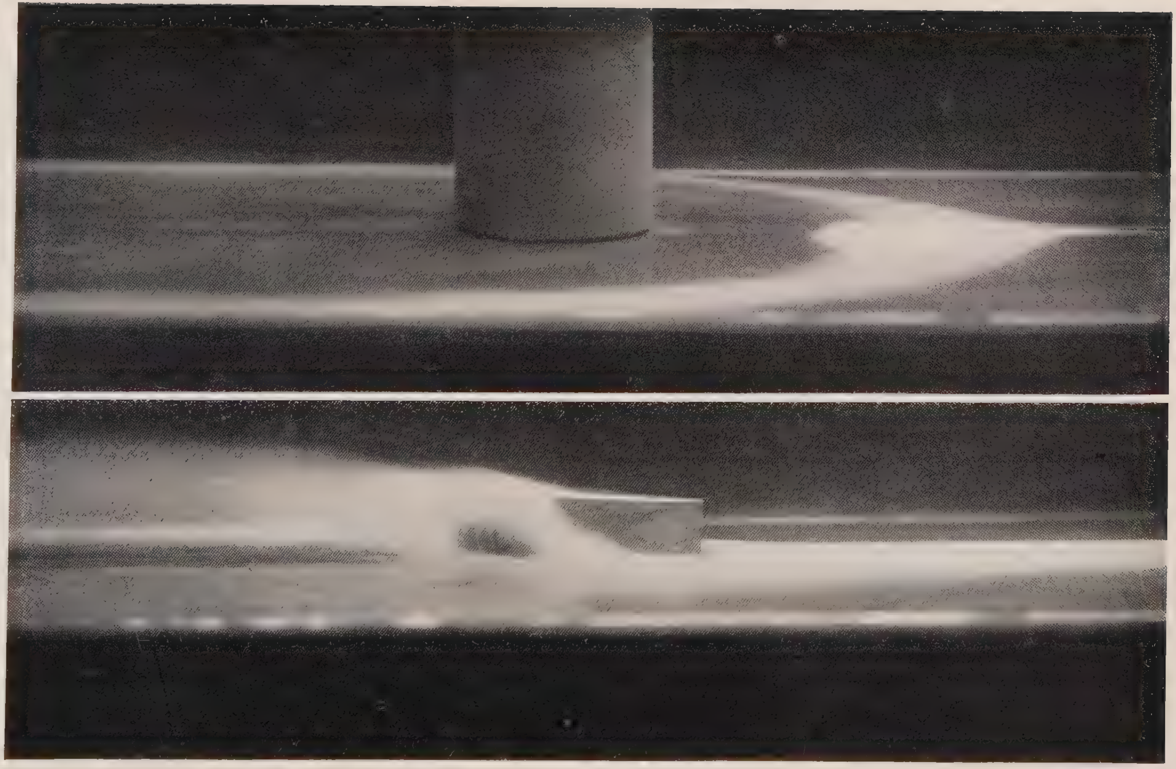


Plate 45

THE LEE, CO. CORK

THIS RIVER IS CONSIDERED THE EARLIEST SALMON RIVER IN IRELAND AND FLOWS FROM GOUGANE BARRA LAKE THROUGH INCHAGEELAH LAKES.



Plates 46 & 47

THESE PHOTOGRAPHS WERE TAKEN BY THE NATIONAL PHYSICAL LABORATORY TO DEMONSTRATE THE BEHAVIOUR OF SMOKE UPON MEETING TWO TYPES OF OBSTACLES STANDING ON A FLAT PLATE. IN THE TOP PLATE, THE AREA OF DECELERATED FLOW AND THE PRESENCE OF A LITTLE REVERSE CURRENT IS CLEARLY INDICATED. IN THE LOWER THE EFFECT OF A THIN WEDGE IS SHOWN. (SEE PAGE 214.)

great friend of mine was, who was all but drowned in his efforts to reach the shore. But he had his waders tied in tight enough at the waist to deny entrance to water and certainly his feet were as much above his body as his head was below the surface of the river (see pp. 107, 108). Every fisherman gets a ducking now and again; when this happens, do not lose your head, but swim as calmly as you can downstream and do not neglect the slightest chance offered to you of getting close to the bank. Above all, do not struggle.

Here are the most vital points of the foregoing. Use a staff in an unknown river, especially when it is in flood. Never move when you are fishing out a cast: fishing and wading deserve separate and exclusive attention. Keep an eye well-cocked for floating branches and for a rise in the river. Crossing a swollen river is not lightly to be undertaken. Enter the water warily and know exactly how you can best get out of it.

§ 3. *Of the function of a fishing-log.*

Date	River	Pool	Lure	Fish	Weight	Remarks
20.6.24	*Dee*	*Willow* just above wicket-gate, on far side L.	Turkey *Jackson* 2/0 14′ Split bamboo 3/5 gut	Salmon CXII ♂	20 lbs. 8oz. 1530 to 1551 summer time	Dull with bright intervals, but there was a little mist clinging to the hills all morning; this went away later. No fish had been showing in any of the pools. It grew much warmer in the afternoon. Water lower to-day (up to an inch below the salmon-stone); yellowish but much clearer. No foam coming down. Conditions very like those of 7/7/22 when I got a fish in Little Pool; so I put on same size of fly. Saw a distinct flash and tightened; did not feel a pull. Fish did not fight well at first, as it would come close in to me. Much helped afterwards by the current. Condition first-rate; gill-arches very pink; no parasites; small 'seal-mark' under chin; and small hook. George (the bailiff) came along, as I was leaving, to say two fish had been taken in Top Pool on a spoon; evidently salmon like something more showy there than in the Willow. They were taken at 1515 and 1540. Pied Flycatcher has arrived after all; heard but could not spot Grasshopper Warbler. An awkward branch in Enchanted Wood Pool ought to be sawn off; it stops back-swing in spinning.
Length: 40″				gaffed by self		
Girth: 18″						
Scale-result: 2·3+						
Temperatures:		Air	at 09.30 hours S.T.		65°	
		Water	at 09.30 hours		56°	

I treat a log purely as a record of success and failure; as a clearing-house of ideas that occur to me the season through; as a record of the times, ways and places of the taking of fish. I have noted down the height and condition of the river and anything that might serve to identify a subsequent set of circumstances with those then present, my idea being to try and discover why salmon should take on some occasions and at other times refuse. Whenever similar entries are made by those fishing up and down the same river, it will often be well worth taking the trouble to find out and compare those experiences with your own.

A fisherman who has equipped his length of river with gauges and takes the temperature of water and air twice every twenty-four hours will naturally preserve a complete record of these vital facts; but the occasional angler, who is spending his holiday on the river, should take his own readings of these temperatures. On many rivers there is no record made of them; and he would be collecting useful data by so doing. He should, first of all, learn where to place the thermometers, in order to obtain correct results.

In making entries in a fishing-log do not stint yourself in the matter of space or detail. The description of an incident, written shortly after it has happened is always more valuable, as well as more vivid, than your recollection of it, put on paper, some years afterwards. Make a record of the bank from which you were fishing when the salmon was taken ; this is judged by turning your back to the source of the river and looking towards the mouth and recorded as L. or R.

If you hear an interesting angling experiment retailed by the riverside, or a trick that might help you to fish better or to improve your tackle or your technique in any branch of the wide subject of fishing, write it down in your log in full detail, so that other men may benefit.

CHAPTER TWENTY-ONE

THE PRACTICE OF FISHING WITH THE SUNK FLY (*continued*)

§ 1. *Where do salmon lie?*

THE correct answer to this question is in any place between the two banks where there is water enough to cover them. It is easy to imagine they have some good reason in the selection of resting-places and taking-places. But actually, I think salmon have no real choice in the matter ; it is the set of the current and the shelter afforded by rocks that determine where they shall lie. The existence of apparently-favourable lodges that always lack a tenant is evidence that we do not understand the true nature of protection given by rocks from the force of the stream. There are, however, a few points on which we have scanty information, enough on which to base probabilities.

The resting-place or lodge is often quite distinct from the taking-place, or as it might more accurately be called, taking-area. I believe a salmon occasionally leaves its lodge to go on a short tour immediately upstream of where it rests and may rise to a fly at any point of its cruise. But there are pools where, year after year, unless winter or spring floods alter the bed of the river to a very marked degree and favourite lies are covered with gravel, fish take the fly in identical spots, or at most a foot higher or lower (the level of the water being the same). There is an extraordinary constancy in this respect that is inexplicable in the case of the salmon, which successively occupy these ' seats,' as Scrope terms them. Where a trout is concerned, the explanation is easy : food and the set of a current that brings the food ; whereas a salmon appears to select as its lodge a place in which the current is most favourable or demands the smallest expenditure from its store of energy.

Although salmon are very conservative in the occupation of their lodges, they will, in years when there is an exceptionally heavy run of fish, take possession of all manner of strange ' overflow ' lies. At such times, they may rest anywhere and often in the most surprising spots.

It is a general axiom that a salmon may often be taken out of shallow water, where the presence of one would hardly be credited. A well-defined stream flowing through the centre of a pool always holds fish, provided the river-bed is suitable ; but often only local or special knowledge will give you accurately the position of the taking-area. Even a man of the greatest experience will, now and then, encounter conditions, in the face of which he will be helpless without the kindly assistance of a native or of one who knows the river by heart. Surface-indication is of some value, but it cannot supplant the more exact method of surveying the bed of the river in time of drought. This is only possible for an angler, who spends much of his time by a particular water, and he will need no assistance from others. Some men try and imagine how salmon could choose their lodges to best advantage. It is curious how common is the tendency to make a fish think as we might, were we faced with the same set of conditions ; and often the conclusions drawn are substituted for what might have been learnt by accurate observation. Also, in flood-time on an unknown river, this method is unsatisfactory, because the surface of the stream gives no sure clue to the strength and direction of the currents at the bottom of the river.

When you are fishing a river for the first time, ask for help in spotting the lies ; it will save you much unprofitable flogging of the water and a good deal of disappointment and prevent you forming an unjust opinion of it.

§ 2. *Surface-indications on good salmon-water.*

By far the most reliable sign of a taking-area is the 'V' caused by a division of the current. The flow of water is forced upwards and sideways on encountering the upstream face of a large rock that is resting on or is part of the river-bed. The true effect of this is uncertain, but it is likely that back-current is produced by some shapes of stones, the very bluff kind in particular. And it is certain that deceleration of the stream takes place in some part of the region in front of the stone, which would assist a salmon in stemming the current.

The photograph of smoke encountering a cylinder (pl. 46), which is reproduced by the courtesy of the National Physical Laboratory, Teddington, shows marked acceleration of the stream at the sides of the cylinder. Yet it is quite common for a salmon to lie against the side of a rock with its tail and part of its body in the lee of the obstruction, that is to say, slightly across the direction of the flow of water.

However obscure be the law governing the changes in direction or speed of the current in these circumstances, you may be perfectly sure a salmon takes full advantage of them. Salmon lie in front of, or behind, or just at the edge of, a large rock. But the swirl or 'V' caused by this obstruction is carried some distance downstream before it reaches the surface and, therefore, in estimating the true position of the rock, due allowance ought to be made for the speed and depth of the water passing over the top of it.

Along the edge or at the *cheek* of a stream or area of fast water is a likely spot for a salmon. In the slack edge of a really-fast and broken run, pouring out from the pool above, fish will, under circumstances best known to themselves, take freely ; but, as a rule, there is only one side from which they can be fished for with any hope of success. This is possibly due to them lying only on one side of the stickle and being unwilling to follow the fly across ; or because the fly cannot be presented in the right manner and held in position long enough for the fish to come up and *fasten*. This could only be a very special condition, as I have come across several heavy runs through which a fish has been quite keen enough to chase a fly. These heavy runs are not really worth fishing, until the water has *fallen in* and salmon have nothing to hope for, until the next spate brings a promise of freedom restored. Right in the current that turns towards one bank and flows gently round again is a fine place for a taking fish. Other spots are where the current, in the form of a crinkling of the surface, is suddenly generated, so to speak, and then bends or spreads into the draw of water at the tail ; where the main current sweeps past a point above a little bay of slack water ; and, provided there is depth of water, just below the point where the main stream comes across and hits a rock-wall. Fish often choose to lie in the area at the bend of a river and generally where a brook flows in ; and are definitely held up for some length of time by the junction of a large tributary with the main, as though they were unable to make up their minds in which stream they were hatched.

The spreading tail of a long pool is sure to hold fish, unless there is some cause of which we are ignorant that makes it unsuitable. And, above all, remember that it is always worth while fishing beyond the *draw* into the broken water below, especially when fish are running, or during hot summer evenings, when they will drop back until they are half in the rough, and also into the shallows, in order to secure more oxygen from thin and well-aerated water. Just behind the neck of a gourd-shaped pool, particularly if there are rock-slabs at that point and the river-bed shelves gently away to the lower half of the pool. In cold weather, during February and March, the deep dead pools are exclusively chosen as resting-places ; but all positions taken up by salmon depend, to a very large extent, *upon the season of the year and upon the weather*.

All these places can, to a great extent, be spotted from the bank ; the following, however, require a more intimate knowledge of the water, preferably acquired in times of drought. Salmon dislike lying on sand, mud and shifting gravel. They prefer to rest on flat slabs of rock or on a rocky bottom, if the latter provides them with shelter. A ledge in a rocky pool is a favourite lie, especially if the rocks are ' skerry ' or flat ridges arranged in layers. Another place is where the pool slides down into depth and convenient slabs of stone are present.

Do not be deceived by the pace of a run. The speed of the water beneath it and near to the river-bed is much slower and is probably much retarded by large boulders. The fish are not actually stemming the current at all, but are safely lying in the cheeks of the stream and in the shelter of the rocks and only enter the rough water, when the game is afoot. And it is surprising to find, when she *falls in* and the fish in a pool can clearly be seen, how easy it is for a salmon to lie in the heavy *draw* of a pool, through which the river descends with power enough to make wading in it far from a simple matter. Yet a fish appears to use no effort at all in maintaining its position on or in the shelter of a rock, or upon large-sized gravel that affords no protection and, therefore, offers no respite from the labour of fighting the current. This, however, is an observation extremely hard to make, except in gin-clear waters, like those of the Aberdeenshire Dee. The shelter of a rock persists a considerable distance downstream ; and that explains why a fish is able to lie in a place apparently unprotected from the force of the stream.

§ 3. *In times of drought.*

As soon as the river falls below summer level, salmon move towards the middle of the shrunken stream in search of shelter and the necessary oxygen that the shallow edges no longer hold in solution. Also, they drop back into the draw of a pool, so that half the body is over the sill and is resting in the rough water, or make their way up to the thin sparkling water in the neck. There will they lie, particularly in the early days of autumn, with their backs almost out of the water; and, on a warm evening, it is always worth casting a fly into all the tiny pockets and stickles that are as rungs in a ladder to an ascending fish. These places ought always to be searched in times of very bright sunshine and low water at the back-end of the season, because salmon are then very apt to work well up the pool in readiness for the next stage of the journey.

Fish the runs and stickles that in days of drought pass muster for the throats of the regular pools. The smallest run may be an attraction to a salmon cruising about dusk in search of well-aerated water. The heaviest fish I have yet landed took my fly during the hour of dusk in a tiny stickle that no one ever troubled to fish.

This habit of making an evening tour of a pool is very noticeable in days of low water and should be carefully studied. The area where the fly is should, therefore, be watched assiduously for the least sign of a flash, as a salmon turns towards the fly or away from it. If the salmon refuses, I believe it to be a sign that the right moment has not yet arrived and that the best policy is to wait fifteen minutes or so before fishing again in the same pool. In the meantime, try another place, preferably where there is a little more stream.

§ 4. *In rising water and flood.*

The first half-hour after the water has begun to rise is traditionally a deadly period for salmon; and this time tradition is right! The expression ' half-hour ' is only used quite loosely. You will naturally go on fishing, until you find the salmon are not to be raised and the spate has definitely taken charge of the river. Mr Chaytor has given some very sound advice on this and kindred subjects, which every fisherman ought to read and test for himself. ' On a rise in water—Go at once to fish all the places where lately it was too low to fish ' (pp. 163–165).

A substantial rise in the level of a river always affects fishing to a marked degree; it is always worth trying, but the period when good fishing is not to be expected varies with the type of flood.

When the river is dropping, but is still running bank-high, salmon will rest and often be hooked close in to the bank, as near as a couple of feet. As a rule, I prefer to fish the inside of the curve, as this offers thin and sheltered water to the salmon and an easy place for the fly to come round. Search very carefully the region inside the line of the fast current at a bend of the stream. This area is well-defined by two or three tiny walls of water pressed, as it were, towards the less troubled bay. Salmon often lie in the quiet water at the cheek of a current, if there is not too much depth. I have not found deep water suitable to a resting fish, unless the river is very cold.

The thin water at the tail of a pool also holds fish for a short period in their upward journey, especially if they have been running through heavy rapids and are very tired. They usually show in the rough at the very tail of the pool, often leap again just after they have entered the pool and are very likely to take a well-placed fly. You will probably be able to recognize these travelling fish by the poor fight they put up. In rocky pools salmon lie close in and rest on the slabs within a foot of the edge, just as they rest during a spate in places where normally you would wade ankle-deep or even where it would be dry land.

A good working-rule is to fish the flats rather than the regular pools ; the former are far more productive and, on Association waters, are less likely to be in demand. And it is far better to fish the smooth glassy glides than the rough dubs and the broken stickles. In some instances, the current of a stream, as it is ebbing, swings across from the centre of a pool and hits the bank ; this will alter the fishing qualities of the water and change the lies and taking-areas.

The best advice I can offer a beginner is to read Mr Chaytor's pages and supplement this by careful observation at the waterside and by the information culled by him from anglers of experience. Watermanship that helps a fisherman to read the capabilities of a pool at a glance is very rare ; even the power of making use of the information others give is hard to acquire.

§ 5. *In time of flood.*

I have been unable to obtain any evidence of the occupation of salmon during the height of a spate. Do they take advantage of the water and run up, as though there were no force in the current to hinder them ? Or do they await the fall in level and the arrival of conditions that to us would undoubtedly be easier ? Observations I have made from spate to spate were apparently contradictory at first ; because one was apt to count the old fish with the new. In late years, I have looked more closely at the salmon I have seen show in the flooded pools and have come to the conclusion that old fish move slowly and without much enthusiasm. Those of us who are fishing some two or three score of miles from the limit of tidal water know well the joy with which we go home in the evening with the news that fresh fish are already up from the sea. It is an event in itself, comparable to the catching of a salmon. Those fish move fast enough without a doubt and are exceptionally bad takers ; but, if you hook one at all, it is almost sure to be in a flat and not in a pool. I am thinking at the moment of the habits of fish in the upper reaches during a spate. Nearer to the sea, salmon are always more ready to take, although on the Annan fish run up on a high spate for several miles without looking to right or left, so that the lowest pools are left practically without any stock. It all depends on local conditions, the time of year, the temperature of the air and the water and upon some instinct of the fish.

As soon as the flood has begun to subside and the water to clear, a good fisherman has no need of any dove to tell him that the time has arrived to search thoroughly the edges of the river. This will probably mean fishing where, a day or two earlier, it was dry land, where grew mimulus, horsemint and other flowers that add their sweetness to the wonder of the river. The river will, at first, be turgid, but will, possibly, fine down in twenty-four hours to high water with a slightly-muddy tint ; this is a favourable time for angling, as resting fish, not those you see leaping in midstream, will be close to the bank and will be able to get a reasonable sight of the large fly, 3/0 and even bigger, you will be wise to employ, unless you adopt the greased-line method (see p. 238 *et seq.*).

The presence of peat-staining generally means that fish are put off the take for two or three days, the duration depending on the extent of the peat-mosses, the intensity of the staining, the size of the flood and the time of year. On some occasions, there is high clear peat-water ; on others, a mixture of washings from road and land with the peat colours the river a turgid yellow. As long as peat-water is present, there is little prospect of sport.

Early in the season, during a flood or a marked rise in river-level due to snow-water, which is often clear, salmon are to be caught in *dead* pools and in *dead* water, that is, outside the stream, in holes where there is scarcely any movement in the water, and in backwaters. It is not worth fishing in springtime near the stream.

A strong cast will be needed : a length of one and a half yards will be enough. The question of pattern in selecting a fly hardly arises : Jock Scott, Mar Lodge, Gordon, or any other you like to mention will serve equally well. The essential matter is the size of fly offered. If you have any doubts about the right size, *start with as big a fly as the depth of the water warrants*, say 4/0½ (two and a quarter inches) or 4/0¼ (two inches). This fly will sink fairly easily in any area where fish are likely to lie in spring, when the water is cold, and it can easily be controlled by fishing it faster or slower to make it swim at the right level, just above the bottom of the river. Flies as big as 5/0½ (two and a half inches) and 6/0½ (two and three-quarter inches) are sometimes needed, when the river is very cold and fish are lying very close to the bottom ; but this is rare, because fish will then be found in areas of slack water in which slightly-smaller patterns can easily be persuaded to sink deep. These flies are to be preferred to those of larger sizes, because their barbs are less rank and the hooks are, accordingly, easier to pull home. As soon as the fly is down, you can start fishing it, but take great pains to keep in touch with the fly, as it is next to impossible to hook a fish with a big fly in deep water, if the line is slack. Fish the fly by pulling it occasionally and just enough to keep it moving in the slack water, if the stream has proved too weak to do this for you. The main idea is to get it to swim close to the river-bed without actually fouling it.

If the fly is held by some obstruction, switch a little line downstream, allow the current to carry it away from the fly and give the line a jerk. Very often it will be found enough to slacken off slightly and the fly will be drawn off clear.

It is one thing to hook a fish soundly and quite another to land it in time of flood. The only safe tactic to employ is to play the fish on as short a line and in as confined a space as you can. Let the salmon once get into the centre of the pool and it will ally itself to the racing flood and between them they will be more than a match for your tackle, no matter how strong it be. Use side-strain to turn the fish towards your bank, if it starts to run ; hold it, as a last desperate measure, hard up against the bank, if you have a gillie or a friend with you who can gaff it out for you, while it is held fast there. Once the salmon has got into the draw of the pool and you cannot follow it down, the game is as good as over. The last resort but one is give it a slack line, but I doubt whether in a very strong flood a frightened fish could help going down with the current. A better plan is to lower the rod, hold the line firmly and walk slowly backwards. Handlining will bring most fish to the bank, if the tackle does not give.

The classical example of the success of thus taking a salmon by surprise and of holding it, while it is 'cleiked,' is described by Scrope (half-way through chapter vi), when he was fishing the Clippers on the Makerstoun water of the Tweed.

Travelling fish appear to ascend through the heavy water in shoals, or 'sculls,' as Davy puts it. They show at a gut in the river-bed, at a bend, in an area of rough water or in a throat below a pool. It often pays, when you see a number of salmon running through one pool, to go at once and fish a convenient draw at the tail of an upper pool, just where it runs into the throat. This is the kind of place that one or two of the shoal might choose as a resting-place ; and all fish are likely takers as they enter a fresh pool. If the entrance is narrow, so much the better ; but the water will probably be much more difficult to fish.

§ 6. *In days of low water.*

There is a level of water below which many anglers refuse to fish any more for salmon, largely because the conditions in the pools are no longer adapted to the employment of the fourteen- or sixteen-foot rod. There is no longer any current to keep the fly fishing and the line taut and moving round towards the angler's own bank. The fishable area has shrunk to the runs, of which there are in some waters all too few. This is where the man who takes out his ten-foot trout-rod scores, more frequently in the evening, it is true ; but he raises and hooks salmon in the afternoon also, if he concentrates on the stickles and puts up a small seatrout-fly or a trout-fly similar to an Alder. I have always had most success in these circumstances with a no. 3 Alder or a Dark Mallard and Claret of the same size. An excellent fishing friend of mine specializes in hooking salmon, when he is equipped solely for trout. I am convinced that, if he took out a salmon-licence and hunted salmon with the same tackle, he would never encounter the adventures ! His experience has been the same as mine. In times of low water, fish take a very small dark fly, which, in his experience, has most frequently been a Black Gnat.

Trout-fishermen hook salmon on trout-tackle far more often than one suspects ; and it is surprising how often this fly happens to be a suggestion of the natural insect then on the water or of a nymph coming up to the surface to hatch !

A most fruitful time of day for low-water fishing with sunk fly is the hour of dusk and the first hour of night, provided the air is warmer than the water. Choose some small stickle leading to a main pool, which several salmon are known to frequent and cast into the stickle as well as out into the pool, wherever there is enough current from the run to make the fly work. I do not advise beginning in such a place, until it is certain you can wave the rod over your head without a risk of being seen by the salmon lying in the neighbourhood.

Be sure, in making a choice of your fishing venue, that the moon is not behind your hand (whether it is hidden by a cloud or is unobscured, it is equally noxious) and that you will not be silhouetted against the evening light. A dark background of trees is very welcome on evenings, when the clear and thin water allows the fish to see everything going on around them. As early as the beginning of the eighteenth century, R(obert) H(owlett) warned anglers against it : 'Note, When you fish thus, the Moon shining, endeavour to have the Moon before you, lest the Shadow of your Self, Rod and Line, scare the Fish.'

The tackle I have found gives an ample margin of strength in dealing with any fish up to thirty pounds consists of a ten-foot trout-rod, a gut-cast about 1x in thickness (the dull light relieves you of any need to fish finer), on which the small seatrout fly or a no. 6 or 7 salmon-fly will play quite easily in the gentlest of currents, and a full hundred yards of line. For the daytime and fishing in the cheek of and across a stickle, I use good 2x or brand-new 3x ; the point of the hooks must be sharp and the barbs free from any suggestion of rankness, so that the points go home easily, otherwise a heavier cast will have to be substituted. Perhaps the semi-invisible gut, invented by Mr E. R. Hewitt, would be successful for this kind of salmon-fishing ; of this I have no experience, as I have used it only for trout, when it has proved slightly stronger than ordinary gut and apparently less objectionable to rising trout.

There is some danger of the line *being drowned*, when you are using such light tackle, as you do not care to risk holding the salmon tightly enough to ensure the line being reasonably taut. The best plan is to tighten on the fish with the rod held well up, so that the strain is taken by the pliancy of the top joint, and to keep it well up during the process of playing the fish, until the time has arrived to lower it and thus increase very considerably the potential strain. Or tighten sideways with the rod pointing downstream and play the fish in that way.

§ 7. *Sundry observations.*

You will probably be obliged, on first hooking a fish, to let it go wherever it may wish, or rather, wherever it is urged by the fear that fills it ; but do all within your power to guide a running fish away from snags and from a strong central run, if there be one in the pool ; by entering this it may put a bight in the line, so that the latter is drowned, and thus break the hold of the fly or the gut against the resistance, offered by the slack line to the water. The only method of saving yourself from this indignity is to keep the line as taut as you can and to lift the rod-point high, especially if there are rocks ahead.

There is, however, an exception to this. If you are standing on a bank to play a fish, get opposite to the latter and carry the rod-point almost horizontally downstream and a little inland. The result of this is to put side-strain on the fish with the minimum length of line through the rings, so that the line is kept taut and there is little danger of it being drowned, and the factor of elasticity in the line is preserved. This needs some explanation. If the angler on the bank lifts the rod-point, the line is stretched taut and leaves the water close to the fish. Every kick and struggle, therefore, is felt directly by the tackle. But, if the rod is held almost horizontally, the line passes through a certain amount of water, which acts as a compensator and largely increases the elasticity of the line.

Walking a fish up is a simple trick by means of which it can be persuaded to move upstream out of the vicinity of a snag or from the draw of pool. The rod-point is lowered, the line held and the angler walks gently upstream dragging the fish after him ; but the line should be held delicately, so that it can be released if the fish should start to run, and the whole manœuvre carried out boldly. It is essential that the tension of the line be even.

Handlining is a desperate remedy to bring in a salmon that is held by the current, or is half played-out and is floating down to the tail of the pool. Drop the rod-point, pull on the line alone and you will be surprised what a purchase is thereby placed on the fish. Hold the rod quite loosely ; you want to get rid of its pliancy for the moment. Pull firmly on the line alone, but always exercise your sense of ' touch,' so that the line shall not be strained beyond its tensile strength. In a general way, I believe few fish can resist this direct pull ; they are bound to come in.

If you are fishing on a bank and the salmon you are playing runs in towards you at a speed that allows no time to recover line, walk inland and take up line in that way, until you are able to reel up and walk forward again. If the fish is still fresh, it is better not to reel up short, but to play it from the place to which you have retreated and preserve the elasticity of a longish line. As soon as the salmon goes out again, you can follow it to the bank and resume playing it in the usual manner. Occasionally a very tired fish beaches itself. If it should have chosen to run up your bank and a gillie is with you, walk back inland and keep the same length of line out rather than run the risk of being broken through the line being reeled in short. If, however, you are alone, reel up steadily and keep the rod-point vertical, until you are able to reach the salmon and gaff it.

§ 8. *Dapping for salmon.*

Mr G. H. Nall kindly sent me these short notes on dapping for salmon in Ireland.

' Dapping for salmon with a blowline and a live Mayfly, which was, at one time, chiefly associated with the now worthless West Meath loughs and with brown trout, has become, more and more, a popular method in the south-western districts of Ireland ; and both seatrout and salmon fall victims to it. After the Mayfly season, or where the Mayfly does not occur, the live grasshopper and the daddy-long-legs are used. Corrib is a great centre for this mode of fishing and so is Lough Currane (Waterville). It has been carried by Irish experts to the Connemara waters ; and recently, on one day in August, as many as five salmon (more probably grilse) were killed with the grasshopper by two anglers fishing from one boat on Lough Inagh (Ballynahinch).

Blowline fishing needs much experience ; and to me it is, at present, far more difficult than using the artificial in the normal way. The live grasshopper, daddy, or Mayfly must be kept dancing or resting *on the surface* ; if it sinks, it is drowned. And, when a fish comes up, you should not strike, but wait until it actually takes the bait down and then tighten. The fish often play around and splash about the bait, before they decide to take it. And it can be imagined what sharp eyes are needed, when the line is bellying out and the 'hopper is far away from you.' A description of appropriate tackle is given in *Trout Fishing from All Angles*, p. 334 *et seq.*

§ 9. *Harling.*

The lower portions of great rivers, such as the Tay and the Shannon, as it was before the hydro-electric scheme was carried into effect, are too wide for anglers to cover wading or casting in the usual way from a boat. A special method was, therefore, devised of trolling the fly astern of a boat and steering a course that ensured a large area of water being thoroughly searched. One of the Shannon methods described by O'Gorman (see pp. 330, 331) is very much the same as that used to-day on the Namsen and other broad Norwegian rivers. Harling was formerly common on the lower Tay, but, in recent years, it has fallen into disuse. I am, therefore, taking as a standard the Norwegian method.

The stream in rivers on which harling is a recognized mode is generally very powerful ; and heavy flies and baits are needed to get down to the level at which fish are running (see pls. 48 and 49). Flies of the necessary weight would be difficult to cast and this way of presenting them to the salmon is the only one that is practical. When, however, the Namsen, for example, drops considerably, there are stretches where the fly can be cast in the normal way with fair prospects of success.

Three rods are employed at the same time. They are spread out at an angle of forty-five degrees from one another and held in position by small brass castings fitted in a board at the stern of the boat. The reel lies flat on the board and the line is prevented from going out by the pressure of a small weight or flat stone resting upon it. Rods for this type of fishing must be stout enough to withstand the strain of resisting the current and long enough to spread the baits well. Eighteen and sixteen foot is the recognized length for the rod. The reel is chosen to suit ; a diameter of four and a quarter or four and a half inches will provide ample room for the necessary hundred and fifty yards of level line. The casts employed were always made up of treble gut or the strongest royal *hebra* obtainable ; but, at the present day, single wire often takes the place of gut.

The baits vary according to the season and the height and temperature of the water. Early in the season, dace and golden sprat are taken well, although this varies from year to year. Also there has been specially designed for the Namsen a spoon called after that river ; it is used as large as three and three-quarter inches and as small as two inches, the size being chosen to suit the level and state of the water. The colouring of this spoon is silver on each side, silver outside and copper inside, or silver outside and gold in. Flies of standard patterns, but of large size, are also used ; and special flies are also sold, to the heads of which are fitted tiny propellers to break up the water and cause ' flash.'

As soon as the boats, which, on the Namsen are rowed by two boatmen, are under way, the flies or baits are let out until they are trailing about twenty yards behind. The course of the boat is straight across the river and back again, dropping about two yards every harl. It is very heavy work for a single man to keep the right course, as the current is so strong. For this reason it is the custom to employ two ; and the second man has the additional duty, when a fish is hooked, of winding up the line of the third rod. The recovery of the other lines and baits is the first duty to perform, directly a salmon is hooked. The next is to get to land and allow the angler whose rod has become attached to a fish

Plate 48

NAMSEN, NORWAY: THE BLOIS CAST ON THE GARTLAND BEAT

IN THE FOREGROUND CAN BE SEEN THE TIPS OF TWO RODS, AS THIS PHOTOGRAPH WAS TAKEN FROM A BOAT BEING ROWED ACROSS THE POOL.

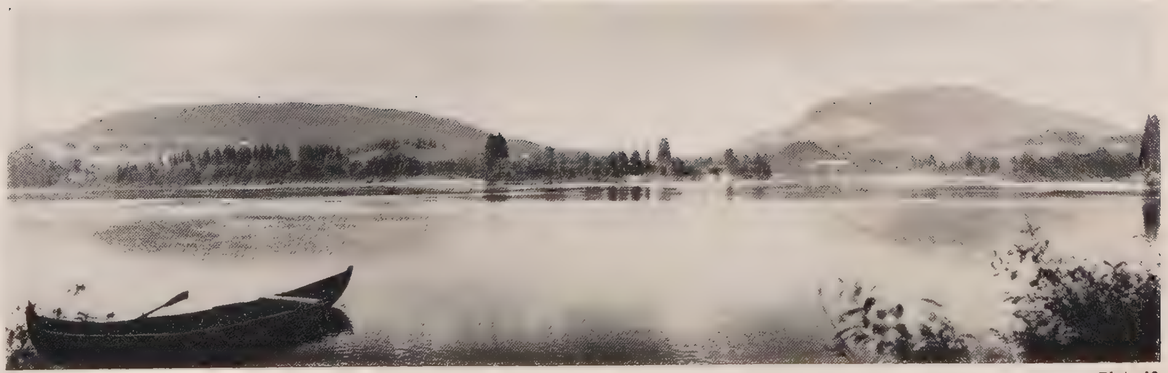


Plate 49

NAMSEN, NORWAY: JACOB'S BACKWATER ON THE GARTLAND BEAT

THE BOAT IN THE FOREGROUND IS THE USUAL TYPE USED FOR FISHING ON THIS RIVER. IT IS AN EXCEEDINGLY LIGHT AND USEFUL CRAFT, LOCALLY MADE AND DRAWS ONLY FOUR INCHES WHEN FULLY LOADED. IT IS GENERALLY FOUND BETTER TO FIT ENGLISH ROWLOCKS AND SCULLS.

to go ashore and play it. Sometimes two fish take the bait almost simultaneously and, I am told, three have on rare occasions been played at the same time. It is very unlikely that all three would keep clear of one another long enough for them all to be played out and brought to gaff.

The salmon of the Namsen and other large Norwegian rivers have a reputation of being very heavy fish ; and it is the playing of them which undoubtedly provides the major part of the fun of fishing for them. The hooking of salmon by the method of harling depends entirely upon the skill of the boatmen. If they know the river and the habits of the fish, they can steer a course that will introduce the baits to the maximum number of fish. Whether the fish will come at the bait and fasten is a matter that rests with the fish alone.

For the material of these notes on Namsen harling, I am indebted to Colonel N. G. Pearson of Bramcote, Notts, and the Reverend R. Wheen of Clifton, Ashbourne, Derbyshire, to both of whom my best thanks are due.

§ 10. *Loch-fishing for salmon.*

The practice of fishing in the sheets of water into which salmon run hardly differs from that in the river ; but it is certainly not very remunerative, except in a few instances. One of these, the fishing in Grimersta, is famous for the number of fish it yields. Angling is there conducted in a chain of four lochans, which are joined end to end by short lengths of river and the lower of which is connected by the sea-loch by a mile of river. The small pieces of river are of little account from the angler's point of view, all the most successful fishing being done in the lochans themselves. These sheets of water are shallow and have a gravelly bottom; these circumstances induce fish to rise freely. Generally two flies are employed on one cast and most of the fishing is done from a boat. The Grimersta chain of lochans is typical of a Hebridean loch in which salmon and seatrout abound, but there are no others approaching it in the possession of such a prolific stock of fish. As grilse are more numerous than the other classes, light tackle and a twelve-foot rod will serve.

When the water is rough, it pays to cast well into the waves, close inshore, where salmon are likely to show ; to throw over any rising fish ; and to search very carefully the neighbourhood of any submerged reefs of rock. Try to persuade fish that are hooked to keep clear of weed-beds, especially if you are employing a dropper. If the fish is to be gaffed and lifted in a boat, keep the dropper well away from the side.

Another loch wherein fishing for salmon is regularly practised is Loch Lomond. In February, March and April fishing is done by trolling a minnow, natural or phantom, at the end of a trace and thirty to thirty-five yards of spinning-line. From May onwards, fly is employed in certain areas in which fish are still in shoals ; later, they scatter and lie in shallow places and they ' are generally found closer to the shore and in shallower water than seatrout. They like to lie in water four to six feet in depth, with a sudden dip whither they can retire when disturbed. They are certainly partial to places where large blocks of rock rise from the bottom ' (*Fifty Years with the Rod*, p. 234 : John Stirling). The tackle for this style of angling should be light. A twelve-foot rod is quite strong enough to play the fish with, but possibly the extra length of a fourteen-foot rod would allow the angler to control the flies to better advantage. Whatever rod is employed, care should be taken that the tackle is in due proportion, one part with another. Mr Stirling recommends several patterns of seatrout flies as leader and dropper on the cast (see *Trout Fishing from All Angles*, p. 186, for the manner of making up such a cast) : Mallard and Olive, Teal and Olive, etc., in sizes 7 and 8, Limerick, and also a few larger, should there be waves or strong ruffling of the water. The depth and clearness of the water in which you are fishing will, to some extent, influence you in choosing the size of fly to put on ; and I think you should always take into account whether you are likely to meet salmon or grilse, because the latter are said to swim higher and may, therefore, be raised by a smaller fly. It is as well to carry some small March Browns (or any other fly you particularly fancy), lightly dressed on fine low-water hooks (see plates 24 and 50). In Loch Lomond, there is a stock of salmon that may be relied on to show sport by rising to the fly, a very unusual state of affairs in loch-fishing. Upwards of four hundred and fifty salmon have twice been reported as taken from it in the course of a year (1925 and 1927).

On the other side of the picture, there is Loch Lubnaig in the Forth basin, which salmon enter as early as the 15th of January, the Falls of Leny notwithstanding. The bed of the loch is irregular, but two-thirds of it is covered by water less than fifty feet in depth. A few salmon are taken here on the minnow by trolling ; but, says Mr Stirling, ‘ I have never heard of a Lubnaig salmon being taken on the fly.’

Bala (occasionally), when trolling for pike, Derg, through which Shannon flows, and the Connemara loughs, all yield salmon to minnow and fly ; a few salmon are caught in time of spate as they enter Llyn Dinas from Glaslyn in Carnarvonshire ; but it is rarely worth fishing specially for salmon in these large sheets of water, if a river is available. It is better to go in quest of seatrout and be thankful for the happening salmon.

CHAPTER TWENTY-TWO

THE CHOICE AND MEANING OF A SALMON-FLY

§ 1. *Concerning the choice of a sunk fly.*

THE chief reasons that lead a fisherman to select a fly for any given pool or flat are, according to current theory, three : the pattern ought to be suitable to the colour of the water or to the light ; the size right for the height and temperature of the river ; the style of dressing adapted to the way he wants to fish the pool. One style will cause the fly to swim high and another will make it sink down amongst the stones on the bed of the river, where salmon are usually wont to rest. Style in this sense means the ratio between the quantity, not length, of dressing and the length of the hook, or the fullness or spareness of the dressing. These factors largely control the tendency of the fly to swim high or a little below the surface. Although style, the weight of metal in the hook and the manner in which the fly is fished play a part, the extent to which a fly can be compelled to sink does not amount to very much, unless a weight is attached to the cast, or a piece of lead wire has been coiled round the shank of the hook, before the fly was built on it. A slack line *without drag* allows the weight of the hook full liberty to sink as deep as it is able, a lowered rod-point assists by sinking the line and casting, so that the fly meets the surface of the river with some violence, also helps to a small degree.

Every fisherman is agreed on the importance of discovering the right size of fly for the pool at a given height of water. To assist him in finding this out the use of a water-gauge has been recommended, or, in lieu of it, well-known marks that roughly serve the same purpose. But it ought always to be kept in mind that a size of fly may take a fish in one pool and be far too large or small for the next pool, or for the flat or the stickle adjoining. If you will turn to page 75, you will find a quotation from Scrope, in which he emphasizes the importance of changing the fly, largely, as I read it, with a view to discovering the acceptable size. Mr Wood of Cairnton has an alternative view on the matter, which is decidedly original. By swinging the rod-point towards the bank, so that the current presses harder upon the line, or by taking in a little line (see p. 245), he makes a large fly travel noticeably faster through an area of slowly-moving water. The effect is almost the same as if he had fished a smaller fly at the normal pace. This tactic Crosfield called *pulling through* and he employed it in summer, whenever he wished the fly to swim close to the surface. Of course, Mr Wood only uses this trick when conditions are suitable and as an alternative to changing to a smaller fly, a subject he studies very closely. Thus the speed at which a fly travels is a new factor to consider in deciding the right size to use.

The temperature of the water is often of great assistance in determining the size of fly; but pattern and colour are usually negligible quantities, compared with the consideration of size. When the water of the river is very cold, fish lie low and the fly should be big and heavy (6/0½ to 4/0) to get down to them; but, again, account will have to be taken of the strength of the current and the depth of the water, or else there will be a great risk of a very heavy fly getting foul of the bed of the river or, at least, of the point of the hook being blunted against the stones. It is possible to avoid this, without changing the fly, by fishing it rather faster, that is, by taking in a little line, so that the fly swims at a higher level. It should be borne in mind that, when conditions indicate the use of such big flies, salmon are sure to be lying in quiet water; thus the controlling of the level at which a fly swims is more important than when the streams and stickles are being searched.

Any directions I could put down on paper to assist in the selection of a fly would be perfectly useless to the man at the waterside. With all the conditions of wind, sun, barometer, thermometer and water-level known, it is often very difficult, even for a master of angling, to choose with any real confidence the right fly for a given pool. If he had been told the size and pattern of the fly on which a salmon had, five minutes earlier, been taken by a man fishing from the opposite bank, he would find the problem little easier, unless his experience had taught him always to put on a smaller or a larger fly than had succeeded opposite. It is very common to find the size of fly that takes a fish from one bank will not succeed, when it is used from the other. Sometimes a fish will not take a fly it has seen on many occasions and in several sizes, until a favourable moment has arrived.

One evening in May, I was fishing a pool on the lower Dart that was deeply set between banks covered with trees in young leaf. A fish had risen several times close under the bank where the current hit the rock, after swinging right across the pool, and close to the path by which I had approached the water. I had already offered it several sizes of Black Doctor I had specially dressed for such shadowy places by substituting black seal's fur for the customary body-material, black floss silk. The exchange had been made in the hope that seal's fur would reflect or make use of what light there might be in the water; also I knew dubbing would soon become soaked and cause the fly to sink quickly. Just as the dusk was turning into darkness the fly was firmly taken. Of the rest of the tale there is not room here. A full moon, newly revealed, and a silvery fish leaping in its light were part of it. But when the time for gaffing had arrived, I found myself crouching on that narrow rock-cut path, trying to get within range of an exhausted salmon, which always appeared to be the wrong side of a small belt of dwarf bushes. The solution of the problem I adopted may have been dangerous, but it succeeded. I allowed the fish its head until it had recovered enough to swim up to the head of the pool, where it was easy to use the gaff.

The whole question of the right size of fly to offer a fish is extremely complex. It is probably best to start with a medium-sized fly, unless you are trying Kelson's Exaggeration theory (*The Salmon Fly*, p. 267). This idea was, for several years, tried with considerable success on a stretch of the Welsh Dee. I know the pools of that reach well enough to say the use of a large and extremely-bright fly, prior to employing one of a reasonable size and shade, probably took more fish than the ordinary methods. The following concrete example will explain the idea. The water was in perfect ply and the pools were well stocked ; but, instead of tying on the conventional size of fly for that height of river (0 or 1), the angler I have in mind began with a very gay pattern, often as large as 5/0. When he was satisfied the curiosity of the salmon present had been aroused, he exchanged this fly for a smaller one, generally his own pattern of Red Sandy (see pl. 1). By this means he often succeeded in the afternoon in taking a fish from water that had been thrashed all morning in vain. This may, of course, have been due merely to a rise in the level of the river or in the temperature of the air and have had nothing to do with choice of fly. But, as in all salmon-fly problems, we have to admit we do not know what the salmon would have done, if a fly of normal size and not the exaggeration had been put over the pool ; nor have we the slightest conception of what the salmon really consider reasonable in size or colour. Further, the size and design of the salmon-fly, as a lure, is likely to remain a thing of guesswork, as there are no natural lures to serve as a standard.

In the springtime, whenever there is a heavy thick flood, the size of fly will have to be 4/0, even as big as 6/0½, and also be sunk well down to where fish are lying. As she ' fines ' down, 4/0 or 3/0 will serve. Be sure the point of the hook, on which a large fly has been dressed, is really keen and that your tackle is stout enough to stand the strain of pulling it into a fish's jaw. If the hook should catch up on the bed of the river, switch a yard or two of line downstream and the current will pull the hook clear.

I am a faint-hearted believer in exchanging one pattern for another all too similar. The substitution of a dark fly for one considerably lighter may well have the effect of attracting a fish ; and so will the exchange of a fly, through the fibres of which light will pass, for an opaque pattern. The latter distinction is often less obvious than would at first appear. If a Silver Grey is held up to a strong light, it will be seen to a large extent to be translucent ; whereas a Mar Lodge similarly viewed allows scarcely any light to penetrate its dense wing-fibres. Yet in the hand, or lying on a table, there will appear little difference in that respect. This distinction in dressing is undoubtedly accidental and not of design.

Of local patterns there are or were hundreds ; but many of them have strangely lost their parochial appeal and have been invested with general effectiveness on rivers, far from those for which they were so exclusively designed. Also, there is the opposite process to be seen on the Spey, the Eden, the Chester Dee and many other famous waters (see pp. 84, 331 and 334). The old sombre local patterns have been driven out and the invading gaudy flies, to use a time-honoured epithet, are taken quite as well. The salmon, the supreme arbiter, is evidently not at all particular !

There is some fundamental truth hidden beneath the statement of Kelson that rivers may be classed according to the colour, which is most favoured by salmon, when it is introduced into the flies offered them. Of course, Kelson went too far and applied this theory to the colour of floss silk used for a tag and thought this enough. Mr Lamond has shown how it applies even to the colours predominant in an artificial minnow. One principle is undoubtedly the harmonizing of the bait or fly with its surroundings, so that it shall not appear to the fish in a way that would be called, in human terms, garish.

In a certain year Lochy salmon at one period of the season were only to be raised by a Canary Fly. The next year, that fly was generally ignored ; this suggests a change in the colour of the water. On the Carron, Green Highlander has long been a favourite and local men demand some green in the patterns they employ (see Lamond : *Some Piscatorial Problems Idly Considered*, p. 23 *et seq.*, and p. 133).

There are many such examples to be found up and down the country ; I wish I knew the reason why this or that pattern is taken far better than another under given circumstances, a problem as yet too recondite and beyond the limits of our present stock of knowledge. In a general way, the reason for the success of a pattern is that it is a favourite and is more often shown to the fish ! But, apart from that, we have no idea how much the light reflected from the bed of the river and from the surroundings of a pool transfigures a fly. Again, the angle at which a fish sees a fly is a very important factor and ought to be given due weight, when an estimate is being made of the effect on a salmon of any given pattern. This is, as yet, outside the very restricted pale of our comprehension of fish and fishing and it may well remain so for a long time, because there is no constant angle at which a salmon views a fly. The cunning fisherman varies the angle of presentation and hopes one of them will prove right. And the modern method of radial casting (see pp. 249 and 250) goes far towards ensuring that a salmon shall see the fly in many different ways. I am here referring, of course, to fishing with the sunk fly.

To return to the main theme : the choice of fly. The only rules I have found of any value are these. Put on a small dark brilliantly-dubbed semi-translucent fly, such as Claret Jay, when the sun is shining down unobscured upon a stickle in time of low water. At dusk in the main pool and under trees or some other form of shade, I would employ a dark fly, several sizes larger than had been selected for daytime fishing. In a shallow stickle at dusk and also in the open pools as ' she falls in,' I have often seen a small Silver Grey succeed. For some mysterious reason a Jock Scott has always proved an unlucky fly for me ; but I would be among the first to point out how attractive, when the water begins to run clearer, is the pale tip of the turkey feather. Always be sure in dressing or choosing a Jock Scott that this part of the under-wing shows well beyond that of the other feathers. The pale tips of the cinnamon-turkey feather used in Turkey Jackson (an example is shown at the end of the *de luxe* edition), or in Maxwell's Dun Wing, is more than half the attraction of those excellent patterns ; the translucence of the separated fibres of wings tied on flat and the pale lemon dubbing at the tail constitute the remaining half. If I had to rest content with only one pattern the season through, I would unhesitatingly choose the former in different sizes and with an alternative shade of dubbing (vermilion or flame) in the second or claret section. My choice would be dictated by faith alone, not by any superior virtue resident in the pattern. If, however, I am going to use a mixed-wing fly, I always pick out one in which the fibres of the wing have faded and have been thoroughly broken up, so that light can freely pass between them. *But success largely depends upon the way you present the fly.*

§ 2. *What is a salmon-fly?*

A modern salmon-fly is not regarded as an imitation of the natural fly, upon whatever it may primarily have been based, in fact, the word *fly* is given by courtesy ; it is a title earned by the manner of its construction and origin and academically is entirely wrong. But what else can it be called? Lure is at present earmarked for the spoon, the artificial minnow and other baits. The Scottish use of hook is ambiguous, as I once found out on Speyside when a fisherman, taking out his fly-book, kindly said he would 'tell me a good hook.' We were at cross-purposes for a few minutes ; but mutual understanding came at length and we agreed that *hook* was a very poor substitute for *fly*. So fly it will remain until the real word is born and better so, because every fisherman is aware of the fiction (see p. 319).

Marine food.

What then is a salmon-fly? Or rather, why does a salmon take it? It is not a conscious imitation of any form of food taken by the salmon in the sea ; the nature of the marine food of salmon was unknown when flies were first invented. But to rule out imitation is to state only half the case. The fly may be a suggestion of some form of salmon-foods. The possibility that salmon feed regularly in fresh-water has been ruled out of court. The evidence of scale-reading has settled that point (see p. 403). Can the fly have some resemblance to a marine form of food? A likeness due to colour, shape, size, or behaviour? Here we are on less slippery ground ; suggestion is always a safer word to use than imitation, because the closest imitation to human eyes is from a piscine point of view, probably quite unlike the real object. The Silver Grey has been described as a marvellous representation of a shrimp ; and some men associate brilliantly hued patterns with similarly coloured forms of marine life and attribute the success of these flies to that resemblance. Personally, I think curiosity is a solution more likely to satisfy that branch of the problem.

Anger.

There is also the theory of anger and of the desire in salmon to seize, kill, or destroy anything that annoys them. I wonder what happened when there were no flies to bother them. Did they wander sullenly about a pool, seeking a victim, and, finding none, go back to the lodge and await a return of a state of peace with the world? This tempts me to imitate William Scrope's magnificent sophistry and to suggest the angler as the salmon's benefactor, because he relieves the monotony of life in the pools by providing objects, upon which they can vent their feelings. No ; I do not think there is much in that theory!

A fish in difficulty is an easy prey.

Another suggestion put forward is that a salmon takes a fly, because the latter is suggestive of a small fish in difficulties and presumably unable to look after itself, or struggling violently and therefore disabled or even deformed, and, in consequence, an easy prey. If this is the impression given by a fly, a salmon ought every time to take the fly in obedience to the natural law that the weaker shall not survive. But in most rivers where salmon are found, they live in a world of such impressions and, for the most part, disobey the law, as well as many others laid down for their observance! Also, I suspect the latest ideas concerning the proper presentation of a fly would not allow it to give the impression of being in difficulties, but rather of having enough control to make for the side. That, at least, is the idea given me of a fly fished in the greased-line manner. If a salmon thinks the same, it takes the fly, presumably, from fear of missing something ! But the existence of the law of survival is well-established and, at the expense of a little digression, I am giving three examples of the way it works.

Every keeper worth his salt should welcome the presence of a sparrow-hawk amongst the partridges ; his coveys will be strong, because the weak and diseased birds will be killed off by the hawk, before they can perpetuate their own weakness. Thus the unhealthy members of a covey are taken and the strong go free. Knox on page 146 of *Autumns on the Spey* suggests that the insensate destruction by Scottish keepers of *raptores*, especially the kite and the white-tailed eagle, has a direct bearing on the presence of grouse-disease. And this may well be part of the cause.

Mr Wm Beebe gives in *The Arcturus Adventure* (p. 186 *et seq.*) an account of the attitude of some species of marine fish to another fish that is in trouble ; this is given here in a condensed form. Mr Beebe was fishing with a hook and line from a glass-bottomed boat and he noticed, as he was pulling in a pigfish, a six-foot shark swung towards it. He looked down through the glass and saw two sharks and, swimming over, around and within a foot of their noses, a shoal of pigfish. The hook was then re-baited, lowered and all the pigfish rushed at it : the sharks and the groupers took the mildest possible interest. A pigfish was allowed to take the bait and was hooked. ' It struggled fiercely and like an electric shock every shark and grouper turned toward it.' ' There was no question that from being a quiet, slowly swimming, casually interested lot of fish, the three groups—pigfish, groupers and sharks—had become surcharged with interest focused on the fish in trouble. I drew the hooked fish close to the boat, and could plainly see that the hook had only passed round the horny maxillary. There was not a drop of blood in the water, and the disability of the fish consisted only in its attachment to the line.'

Nothing is proved by analogy ; it can also be said this is merely an account of sea-fish. But what after all is the true habitat of the salmon ? Is it not as much a citizen of salt-water as the sturgeon, the lampreys, the smelt and the two shads, all of which spawn in fresh-water. Even if a salmon were a foreigner when it is in the sea, it can hardly afford to ignore marine customs and laws : witness the assumption of the smolt-coat (pp. 36 and 37) ; and eels assume a silvery coat, before descending from the river into salt-water.

I have seen minnows and small trout swimming confidently over and in front of a pike's nose. The pike did not move a muscle, until one of the minnows appeared to become partly mad or, at least, behaved in a most unconventional manner. There was a flash, a snap and the fish that had offended against Nature's idea of progress and fitness was no more. I do not wish to suggest that minnows make a habit of living perilously within range of the jaws of their enemies, nor that stricken fish and those of curious behaviour are the sole support of pike and other predatory fish. There are times of feeding and times of digesting ; but the sight of one fish in difficulties, in a poor state of health, or behaving in an unusual manner generates in another a desire to destroy that is often irresistible.

Reflex.

In fresh-water, the habit of feeding is not lost by a salmon; it sleeps soundly, until it is fully reawakened by the resumption of sea-life. Occasionally the appetite breaks out during the descent of the fish as a kelt, but only to a very limited extent. Undoubtedly fish in the sea are often led to their food by the flash emitted by their prey, or by it they induce their prey to come to them. This instinct to seize something that flashes becomes dormant when the salmon enters the river, or upon leaving the feeding-banks; but a salmon's reflex is ready at an instant to react to the old stimulus, should certain conditions obtain. Of the nature of these conditions we know practically nothing.

There is nothing of a physical nature to prevent a salmon from feeding in the river; there is no closing of the alimentary canal or digestive tract, a belief that became current through a misconception of the meaning of some words in a report on the stomach-contents of a salmon. The taking of food as nourishment ceases for a period; but this does not preclude the occasional seizing and possible absorption of food-forms in the name of sport, curiosity, anger, or what you will.

Tide.

A suggestion that fish are influenced by the presence of high water at the river's mouth is hardly worth considering, when the pools under consideration are far up the river and separated from the direct influence of the tide by several weirs. If the word moon is used instead of tide there may be something in it. Yet tides certainly can affect fish, but this I have observed only where the river flows out into the estuary.

The sea-pool of a West-Highland river I fished during June held a fair stock of salmon, seatrout and an occasional estuary trout. These fish were not to be taken at all, except at a certain time: for a period of twenty minutes beginning at twenty minutes after half the tide had ebbed. Nor was there any record of salmon having been taken at any other time of day in the sea-pool. I thought I would test this, but found that, directly the psychological moment arrived, fish that had previously ignored my fly went for it with extraordinary promptitude. Whenever it was my turn to fish the pool at this time, I hooked a fish and the other fishermen did so in their turn. If the period occurred about midnight and there was no moon, fish took just as well. Within one such period of twenty minutes I hooked a salmon, a seatrout and a slob or estuarine trout; I fished on for an hour or so, but had no more offers. This phenomenon may not be due to the tide, but to the degree of salinity of the water. If so, the same conditions would be expected to begin forty minutes before the tide had half-flowed; but no one who had fished that pool at such times had found it was so.

Temperatures of water and air.

Suggestion and the excitement of a salmon's reflex appear to me, at best, only half-truths, which need a mediate cause to explain why so many fish, widely separated, are simultaneously affected. There are several entries in my diary stating that suddenly the air grew warmer and fish, which all day long had seldom showed, started breaking the surface of the river with nose-rises and with little explosions like kisses. This note is always accompanied with the story of one or two salmon raised, hooked, or landed. The temperature of the water or of the air have, *by themselves*, no influence we know of. Salmon will take in all temperatures of water within a definite limit. Nor is the change of water-temperature itself considered to be important. But observations over a prolonged period of these two temperatures and their comparison have produced evidence that *salmon take freely, when the river-temperature is lower than the air-temperature, and are extremely loath to rise, when the air is colder than the water.* Why, however, these conditions should coincide with a desire to go out and kill is just as mysterious as ever; but a possible reason is the reproduction of the relations in temperature between the water of the sea, in which salmon feed, and the air above.

Salmon and natural fly.

Here, however, is another line of argument. Salmon take a fly at odd times; trout, also, feed on the surface and subaqueously at slightly irregular intervals during the day, although there is, as in salmon, a tendency to rise at roughly the same hours from day to day, according to the time of year. If observation could show the times when salmon can be induced to rise synchronize, if only to a moderate degree, with the feeding-time of trout, a common cause might be easy to discover. I am beginning to suspect the cause will be found to be natural insects, *ephemeridæ* and *phryganidæ*, in the sub-imaginal, imaginal, or larval stages.

The earliest artificial flies were designed for the taking of trout. When the need to have salmon-flies arose, the same flies were used in much greater sizes, as a compliment to the greater bulk of the salmon. The employment of big flies in salmon-fishing became a tradition. Now, we are beginning to employ smaller flies, flies that are nearer in size to the natural insect. Salmon take these readily, if they can see them, and the rôle of the big flies is now restricted in greased-line fishing to times of dirty and high water. Even in high clear water the small fly succeeds. That is the most significant fact; and it points to the taking of natural flies by salmon in fresh-water, not as food, but for some reason as yet hidden from us. Sport and curiosity are possible explanations; but I do not think there is much in the suggestion that it is due to their recollection of feeding on insects during their parr-life.

The normal fly, as at present conceived, is purely a lure. How certain modern patterns grew out of ancient trout-flies, which had as prototypes natural insects, is discussed by Mr Lamond on page 129 of the book just quoted. But the time will come when some of the patterns employed in salmon-fishing will be definite suggestions of the natural insect. Even if I had doubts about the truth contained in the theory that salmon really take the natural fly far more frequently than we think, I would not hesitate to run the risk of recommending this course, because it is stagnation to remain as we are in the 'lure-stage.' All that is being done is to try and improve existing patterns and to alter *style*. If salmon-fishing is to maintain its hold on the imagination and affection of future generations, it must move. New problems and fresh ways of looking at old problems must be discovered; and in the theory of imitation (to a limited extent) in salmon-fly dressing there is scope for much interest and progress. But it must not be at the expense of or in opposition to the employment of lures. Both types of fly ought in the near future to be carried by the angler at the waterside and put on as occasion demands (see p. 319 *et seq*).

There have been so many instances of salmon taking trout-flies and so many reports from trustworthy sources of salmon having been observed rising to the natural flies on the surface of the river, that the possibility of an advance on these lines cannot be ignored.

I have before me a letter sent in response to a request for information on this specific point ; and the text of the reply fully bears out what has just been said. Out of six salmon raised in the course of one season of trout-fishing, four were taken on a small Black Gnat, which was, I think, imagined by the fish to have been a nymph, and two on Olive Quills. On several occasions during low water, I have fished with all kinds of flies for a salmon rising in a small area of a pool, such as the edge of a small stickle, and have not succeeded in raising it, until I put on a small wet Alder (no. 3). I have had two mornings' fishing spoiled by the myriads of grannom, some of which, upon hatching, floated down the pool, before taking to flight in dense clouds. Salmon actually rose to them with a very flat head-and-tail rise ; and it is to the severe competition between the insects and my March Brown (among other patterns) that I partly attribute two blank days. My impression was that they actually took these insects, but I cannot prove this, as I was given no opportunity of examining their gullets. Mr A. H. E. Wood tells me he has never observed a grannom taken by a salmon, but that a hatch of this sedge appears to put fish off the take. This, he adds, is quite different from their behaviour during a strong hatch of March Browns or of Mayflies, when you do not get blank days. But, on grannom-days, the fishing is certainly poor and possibly without any result at all. This is also the experience of trout fishermen, who know that the only chance is to use a suggestion of this insect in the pupal stage (see *Trout Fishing from All Angles*, p. 174).

Summary. A number of potential explanations for the taking of the fly by salmon have been assembled and discussed in this section. The resemblance of the fly to some form of marine food to which the fish has been accustomed, the desire to take or to kill what is in distress and, therefore, an easy prey ; curiosity ; the fear of losing something that is moving out of range ; the awakening of the salmon's feeding-reflex by *flash ;* the influence of the tides ; the comparative warmth of the air and of the water in the river ; and, when small flies are being employed, the definite taking of them, because they represent the natural insect : all these ideas have been briefly reviewed in the light of the experience of one man and his friends. Every angler must work out the problem for himself ; yet, if he succeed, he would, thereafter, be an unhappy man ! But the last thing I should expect to find in any solution is completeness and simplicity, or that one explanation will cover all the difficulties with which, to our endless delight, the whole problem bristles

CHAPTER TWENTY-THREE

TRANSITIONAL

IN the eight preceding chapters I have attempted to give a lucid and full account of the current practice of the day on the majority of salmon waters. I realize that much of it is based on ideas quite opposed to those on which greased-line fishing has been developed and also to those, out of which I am convinced the technique of the future will be built. The old methods, which have, after all, enabled anglers to catch many fish, are there for those who wish to know of or to practise them ; while those, who are anxious to learn about the newest ways of fly-fishing for salmon, may read of them in the chapter by Mr A. H. E. Wood on greased-line fishing and in that by Mr La Branche on the use of the dry fly. This short chapter, however, is chiefly concerned with the mental adjustment rendered necessary by the revolution Mr Wood has brought about.

In tackle alone the change is very marked : a light short rod, even any strong trout rod, serves instead of the old sixteen- or fourteen-foot rods of yesterday, although a long rod can still be employed, provided the top-joint of it be not too harsh on fine gut ; the reel-line is lighter in conformity ; the gut-casts are finer and the flies are smaller and dressed on hooks with points so fine and keen, that the effort of drawing in the hook above the barb is well within the strength of a fine cast. The bogey of striking too hard is almost laid, which in itself allows the employment of finer grades of gut, because to the weight of the current and the resistance of the water is largely relegated the duty of pulling in the ' iron.'

There are many points at which strong contrasts appear. The throwing of a long line is no more a thing to be discouraged, for the long line is usually slack and in fishing with it one hooks fish with much greater certainty than when using a short one, which is probably too taut. Hooking a fish becomes a comparatively simple matter, once the principles are comprehended and the angler's nerves are under full control. Striking in the old sense is a thing of the past and tightening is only resorted to under well-defined circumstances.

Again, the fly ought to swim high, just under the surface and the line ought to be slack enough to allow a fish to take it and turn down or back to its ' seat ' without feeling the restraint of the gut. How different this is to the theory of the sunk-fly and the sunk taut line ! But the straight floating line is still good practice, provided the fisherman *lifts it over* an intervening current or eddy and prevents the fly from *dragging*.

I do not think we ever realized, in the old days before greased-line fishing was invented, how lucky we often were to have hooked a fish firmly on a taut line. I am certain that what is generally called ' beginner's luck ' is largely due to the slack curling ill-thrown line that a beginner knows just enough to achieve. He is actually fishing better than the experienced man, but he does not know it! For he who is new to the game has not learnt how to throw a straight line and sometimes has not acquired the fatal habit of striking violently, when he ought to wait for the pull of the fish on the rod. Instead of observing the rule that strictly enjoined the casting of the fly at an angle of sixty degrees or so across and downstream, the direction of the throw is left entirely to the discretion of the angler, who decides for himself whether he will throw down, across, or up the stream. And he now has to study how he may overcome and even make use of the currents and eddies.

Lastly, the old idea of working the fly has largely been jettisoned; but the need of a *vibrant* fly has undoubtedly arisen. The hackle-fibres of a suitable pattern should be mobile and the body ought, I believe, to be dubbed with some fur that will cause it to pulsate with 'life,' when the fly is within the vortex of a local eddy. And vast numbers of these eddies are actively moving on the surface of the water, even though it may look quite smooth to the observer on the bank. The presence of these eddies explains why a fly just sunk and on a slack line 'fishes' well even in slack water. Also it was next to impossible to take the belly out of a sunk line, or to control the line, so that the fly might have free play.

Mr Wood has told me he finds endless interest in the problems set him by the interaction of currents and by the stickles and fast glides that have to be cheated or used to further his designs. For a very real measure of control must be exercised over the fly, if the best is to be made of the water, while the mode of hooking a salmon ought to be suited to the current through which the fly is passing at the moment a fish takes the fly.

A very short trial of the new methods led me to think all was not well with the theory that the salmon-fly is merely a lure suggestive to the salmon of a small fish or prawn. I am sure this at best is only a half-truth. There is a great deal in the century-old belief that salmon often take such a fly as a March Brown, because it looks to them like a natural fly. I have also seen them take almost a bare hook, which suggests that salmon will certainly take a nymph or hatching *larva* (see p. 246 and pl. 50).

So far from being successful as a method of fishing merely in the rivers where the idea of it first germinated and where it has subsequently been developed into a fine art, greased-line fishing has won its way on practically every water to which it has been introduced.

Lastly, it is undoubtedly a more deadly method and brings a greater reward than spinning, prawning, or worming in heavy water and in the shrunken gin-clear stream of summer drought; in fact, in all water, heavy or fine, summer or winter. If it is true, as many contend, that these modes of angling spoil the water for those that come after, here is one that needs all your skill and the most delicate handling of rod, line and fish, a way of angling that undoubtedly takes more fish, but leaves the pools in good condition for the pleasure of others (see p. 205).

Major Ashley Dodd included in *A Fisherman's Log* (1929) an article on Dry-Fly Fishing for Salmon. The originator of the method he there states to be the late J. R. Fraser, who, in 1906, was led to it through Test salmon frequently taking the floating Mayfly. Both these fishermen experimented with this mode up to 1914, using flies specially tied after the model of a Mayfly. Possibly the advent of war obscured the efforts

PLATE 50.

A very ripe March Brown. (Hardy.)

Blue Charm (low-water series: Hardy.)

Silver Blue. (Hardy.)

March Brown. (Hardy.)

Lady Caroline. (Hardy.)

Blue Charm. (Hardy.)

Hewitt's nymph fly. (Carter.)

La Branche's dry-fly (original.)

Taverner's dry-fly (original).

Chaytor's Gipps (original).

Chaytor's Claret Fly (original).

Chaytor's Silver and White. (Farlow.)

Pryce-Tannatt's Silver Grey (original).

Pryce-Tannatt's Sally (original).

Pryce-Tannatt's William Rufus (original).

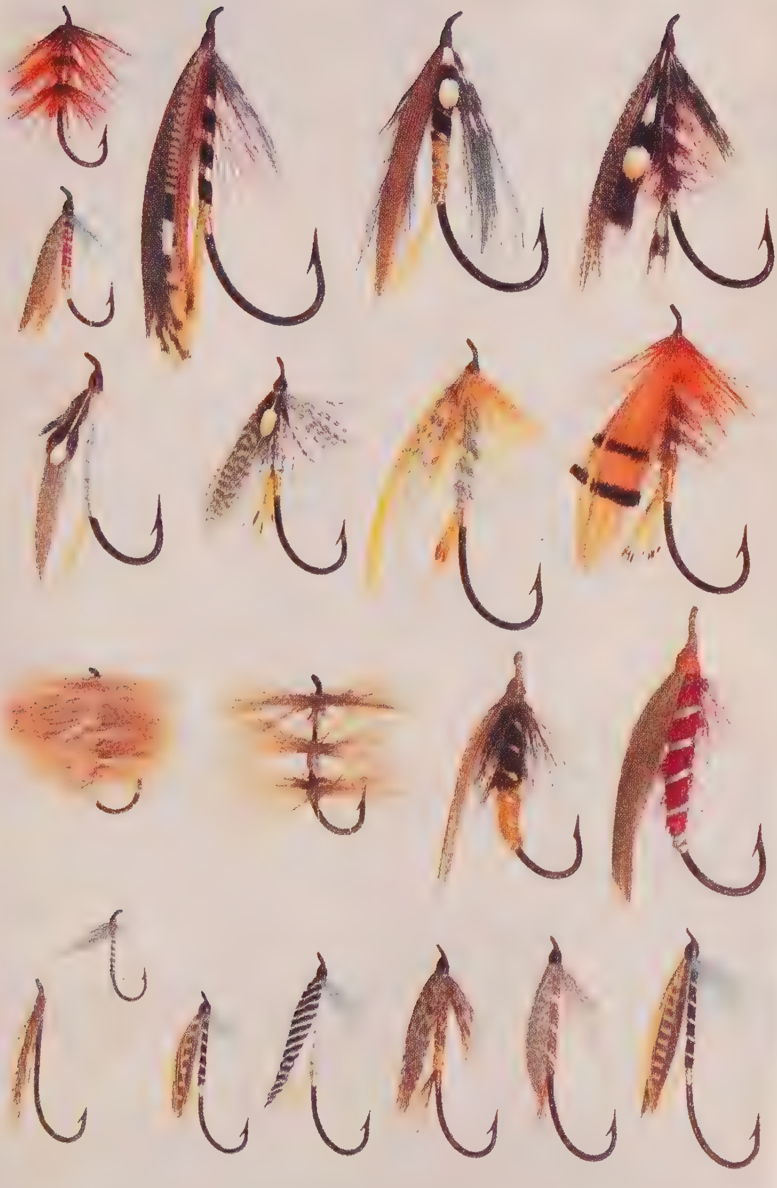
Logie. (Farlow.)

Pryce-Tannatt's Crimson Badger (original).

Crosfield's Black Silk (original). (Lent by T. E. Pryce-Tannatt.)

Crosfield's Akroyd (original). (Lent by T. E. Pryce-Tannatt.)

Crosfield's Brockweir (original). (Lent by T. E. Pryce-Tannatt.)



MODERN FLIES

of these pioneers, or the presence of many weeds and snags and the need to have light tackle daunted those who would have followed on ; but the next advance undoubtedly came from the Upsalquitch in New Brunswick, in which, during the years preceding 1914, Colonel Monell and Mr G. M. L. La Branche had successfully fished for and taken many salmon on flies and tackle hitherto thought absurdly inadequate. As far as my information goes the discoveries were entirely independent ; there is no reason to suppose that Monell had ever heard of Fraser's success on the Test.

Dry-fly fishing, as practised in eastern Canada and Newfoundland, has not been proved a successful method of taking salmon on this side of the Atlantic. Mr Hewitt's suggestion that the temperature of the water must rise to sixty degrees, before the dry fly will be taken with any freedom is only a half-truth. A fuller explanation, although I do not pretend it is a complete one, is as follows. Salmon enter the rivers on the eastern seaboard rather late in the year and encounter warm water, as soon as they are over the bar. They run up the fresh-water and are, as Scrope would have described them, ' in high glee '. They rise very freely to the dry fly, often a large hairy high-floating barrel-shaped lure, such as a Buck-Tail ; they take it whole-heartedly and are generally soundly hooked.

The results of fishing with the dry fly by the finest American experts on such heavily-stocked rivers as the Aberdeenshire Dee ended in failure. They managed to persuade salmon to rise to and take the floating fly, but they failed on every occasion but one to hook the fish. One of them tried striking as the fish took the fly, just as it was about to take, when it had turned and also when he felt the weight upon the line. He allowed the fish to go off with the lure, hoping it would hook itself. One salmon was hooked and landed ; several were held for a short time, before they kicked off. He then came to the just conclusion that the fish were not fresh enough to take a fly of this kind with enough enthusiasm to get hooked. Further, the construction of the lure prevented the hook going home, because the close turns of the stiff hackle guarded a somewhat rank point. When salmon are keen enough, the water-temperature in the rivers of western Europe is always too low ; for, when our chief runs of spring fish enter fresh-water, the river-temperature is about thirty-four degrees Fahrenheit and there is ice along the banks and in the slack pools. Not until the main run of summer fish is growing less, does the temperature of the water reach sixty degrees. I do not know whether autumn fish are, as a rule, lively enough, on entering the river, to rise properly to the dry fly ; but I rather doubt it.

To overcome the constructional disadvantage of the dry fly and to increase its buoyancy, I designed, during the spring of 1928, some patterns with three hackles set equally between the shoulder and the top of the bend of the hook (see pl. 50). There was no body, except some very narrow buttresses, consisting of riding turns of artificial-silk raffia. at the base and on each side of every whorl of hackle-fibre, so that the fly should be light in weight and translucent. But the difficulty was, and always will be, to procure feathers with long, stiff and *blunt* fibres so that the work of supporting the fly may be carried out without employing an undue number of turns of hackle.

My attempt to use the stiff rump-hackles of the golden pheasant failed, because the fibres pierced the surface-film of the water.

CHAPTER TWENTY-FOUR

GREASED-LINE FISHING

BY A. H. E. WOOD

§ 1. *The birth of the idea.*

ONE afternoon in July 1903 I was fishing an Irish river. The weather for some time past had been exceptionally hot and dry, so that the river had dropped considerably and was very clear. I had had no sport all day and sat down to think beside a pool full of salmon that had steadily refused to look at a series of flies, presented to them, as I thought, in every possible way. Shortly afterwards, I saw one fish and then another rise to something floating down on the surface of the water. This continued at irregular intervals; and at length I was fortunately able to observe the cause, namely, a sort of white moth similar to those often seen amongst the heather.

I went to the head of the pool, which consisted of an eel-weir, and there found a number of salmon lying with their noses pushed right up to the sill. As luck had it, I happened to have with me a White Moth trout-fly; this I tied on the cast and sat on the plank-bridge over the weir. Then holding the gut in my hand, I dibbed the fly over them. After some minutes, one of the salmon became curious enough to rise up to examine the fly, but at the last moment thought better of it; this I believe was due to its attention having been distracted by my feet, which were dangling over the plank, barely six feet away from the water. I changed my position, knelt on the bridge and let down the fly. This time the fish came more boldly at the fly and it was followed by others; but I had pricked several before I realized that, because I was kneeling directly above them, I was, in striking, pulling the hook straight out of their mouths. So I changed my tactics and, by letting go the cast at the right moment, succeeded in dropping the fly actually into the open mouth of the next fish that came up to it. I then picked up my rod, ran off the bridge, and made all haste downstream. All this time the line and cast were slack and floating down; yet when I tightened on the fish, I found it had hooked itself. By the use of this trick I landed six fish, lost others and pricked more than I care to say, all in a few hours. After that experience, I discovered myself fishing on the surface or as near to it as I was able. The final advance came, when I started using a greased line to assist in keeping the fly in the right position, and I thus evolved out of a simple experiment what has become a most interesting mode of salmon-angling, the greased-line method.

Further, my experience of greased-line fishing has shown me that a salmon is more ready to take a fly on or just under the surface than at any other level, except very near to the bottom. I therefore aim at keeping the fly at the surface, or sink it right down to the stones ; and I have entirely forsaken the ordinary practice, which causes the fly to swim in mid-water.

§ 2. *Tackle.*

I use twelve-foot rods at all times and fish them single-handed ; but *any* rod of *any* length, single-handed or double-handed, does just as well, provided the line is of the correct weight ; the rod, especially, must be of a strength suitable for the cast and fly in use.

I always take out two rods. In the spring, in February and March, one is a powerful stiff rod approximately fourteen and a half ounces in weight ; on this I use a heavy ungreased double-tapered line, the centre of which is 16 or 16½ S.W.G. (Standard Wire Gauge). The cast to be employed with this line will vary from 2/5 to 4/5 according to the height and colour of the water. With this rod I fish a 4/0 (one and three-quarter inches) to a 6/0½ (two and three-quarter inches) Jock Scott, sunk as near to the bed of the river as I can get it without catching the bottom ; but I only use it when the *air is really colder than the water*. My other rod for spring fishing weighs approximately thirteen ounces and is of medium strength which carries a *greased* double-tapered line, 17½ or 18 S.W.G. in the centre, and a cast of either 5/6, 6/5. This fishes a no. 1 (one and a quarter inches) down to a no. 4 (one inch). I use a light rod of such a strength, because, at that time of the year, there are so many kelts that require holding and landing quickly. Being hard on a kelt is a severe trial to a rod that is really light and also to the cast and line.

In April and May, I take out the medium rod described above and a much lighter and more whippy one and use on both of them a greased line. The medium rod is for use on cold days and during the evening fishing, when fish take a fly even as big as a no. 1 (one and a quarter inches) ; but the light rod, which weighs approximately eleven ounces, I use practically all day. The latter carries a double-taper line, 19 S.W.G. centre and ends of 22 or 23 S.W.G., and parallel gut-casts, varying from 7/5 down to 1x. The sizes of hooks and flies suitable for this rod run from no. 4 to no. 10, ordinary dressing, and sometimes less. I prefer, however, those now called ' light-summer ' or ' *low-water* ' hooks (see pl. 24), which I had specially designed for this particular way of fishing. These flies are very thinly and lightly dressed and are very much shorter in proportion to the length of the hook than standard flies. Such flies are always best when the water is clear.

I use a light-running reel with a narrow and deep drum and see it is well oiled, a precaution that saves many broken casts and lost fish. Fishing with a light line that has been greased often brings you in very direct touch with a fish. While you are playing a salmon as much as thirty or forty yards of line, or even more, may be in the air, so there is a direct pull on the fish and no sunk or sagging line to act as spring or cushion. If you find this has happened, your first care should be to get part of the line into the water ; it is far better, when light tackle is being used, to have a little of the line drowned than for all of it to be in the air (see fig. 75 B).

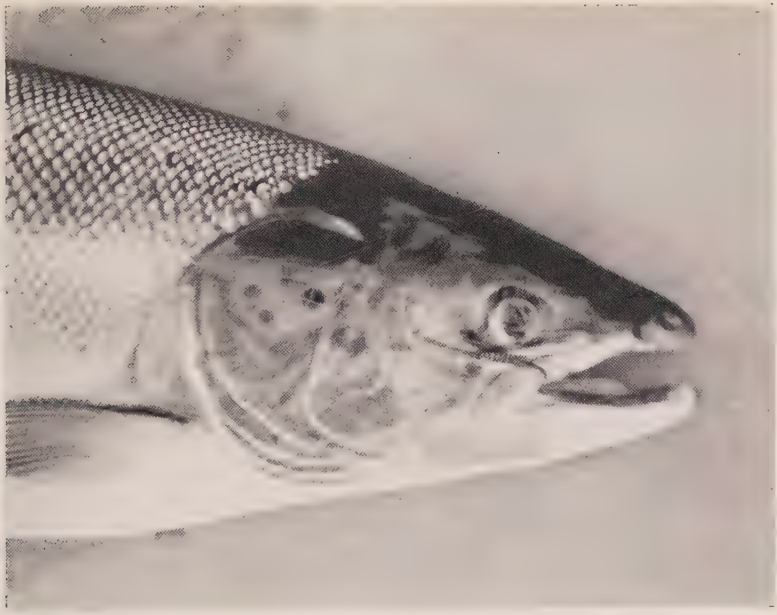
§ 3. *Greased line.*

When using the medium or the light rod, always grease the line. Greasing the line and so causing it to float makes it possible to *fish* all the cast so much better than could be done with the sunk line and using the ordinary methods. Fishing in the usual way, you lose control of the fly, more or less, once it is under water, and hardly know where it is or what it is doing. With the greased line, you are able to control the position and *angle* of the fly in the water and also, to a very great extent, the speed at which it travels ; for you can nearly always see the fly, or, at any rate, know exactly where it is. In all water, slow or fast, the fly is on or only just under the surface, and you seldom fail to see any fish that come to it, and, in doing so they generally make a head-and-tail rise. Therefore, I fish the fly on the surface or as close up to it as I can ; but only if *the air is warmer than the water*. This means that even with ice and snow about, there is a better chance of getting fish with a greased line and a no. 1 to no. 4 hook than with an ungreased line and a sunk fly, provided the sun is out or the air is warm. And, in addition, I have all the fun of seeing the game and of fishing light, as opposed to the ' chuck and chance it ' method. Many have said that the pleasure of fishing with a greased line is the thrill of *seeing* every fish raised actually come at the fly ; and those who really follow carefully what is taking place can learn a great deal from what they observe. For instance, what is the favourite angle at which salmon go for the fly ? Why do they sometimes miss it ? Do they *ever* come short ? These are some of the questions which the use of a greased line helps you to answer.

It is best to grease the line thoroughly before starting every morning. If it is for the first time, spend some time in rubbing the grease well in. A good grease sold by any tackle-maker is suitable, but I prefer a thick one, such as Cerolene, well rubbed in with a wash-leather pad. Occasionally I treat the whole line ; but every morning I make a point of greasing about thirty-five yards. Rub it well in, do not leave more surplus than you can help to come off on your rod or hands and, as far as possible, keep the rod-rings free from grease. After the first application, do not again grease the last yard or so next to the cast, as so much gets on to this bit in actual work ; but if you find the knot-attachment to the cast sinking, you should give the last yard some grease, but *never* grease the cast. In cold weather, one application of grease in the morning should easily last the day ; but, in summer or hot weather, it is often necessary to grease the line again, at lunch- and tea-time, or whenever you find it does not float easily in reasonably-quiet water.

In slow-running water there is *little difficulty* in keeping the line floating. The trouble is that the grease soon gets on to the gut, which then floats, and so does the fly. If you want the fly to sink, a sharp jerk will generally pull it under the surface. If this does not succeed, rub lightly the cast and the last yard of line with a bunch of dead grass ; this usually cures the trouble.

In strong oily water you will not find much trouble, but watch carefully for a sucking eddy or swirl and prevent your line getting into it, by lifting either up or down stream, whichever suits you ; otherwise you will get a



Plates 51 & 52

THE WAY A FISH SHOULD BE HOOKED

A HOLD THAT NATURALLY FOLLOWS FROM ALLOWING THE STREAM TO DRAW IN THE HOOK. (SEE PAGE 248.)

BRORA, SUTHERLAND

PHOTO TAKEN IN THE EARLY SPRING.

drowned line and lose control. Your ability to foresee the effect of eddies and currents depends upon your watermanship.

In strong broken water make your cast nearly square across, then, before the line becomes tightly held by the eddies, lift it upstream, without moving the fly. When you see all is right with the fly, lead the line downstream, just holding it with the point of the rod enough to prevent it going as fast as the current, without actually drowning it. As soon as the fly gets round to your side, it may then pay you to keep the rod behind the line and gradually lift the point; this prevents the sudden snatch that occurs when a fish lying below you takes the fly when the line is taut. But only lift the point high, if a shortish line is out or if the water is strong. Always allow for a certain slackness in the line out of the water and be on your guard against a drag or the drowning of any part of it. Try to anticipate what the eddies are going to do. It does not matter how slack the line is, so long as the fly is fishing as you want it, for you can always ensure enough movement in the fly by giving a free hand to the surface eddies and by letting the line guide the fly where you want it to go. There are very few idle moments with a greased line; but a great deal depends on yourself, if you are going to make the most of it.

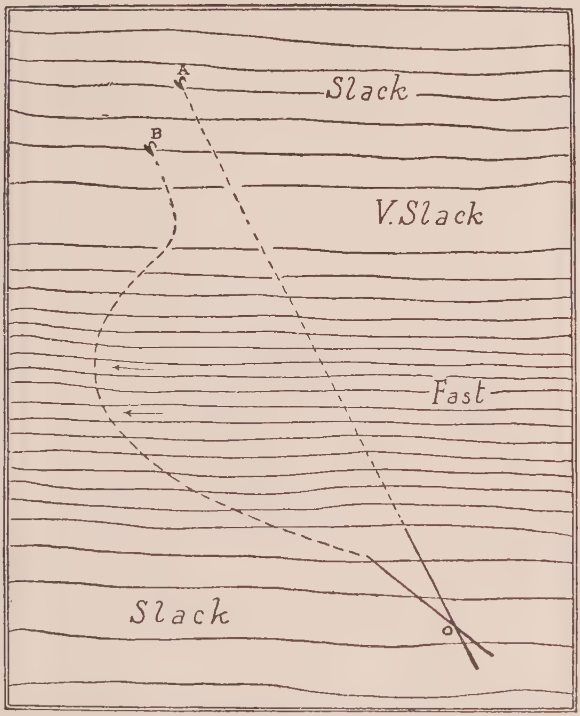


Fig. 67.

The result of casting across a fast current into an area of slower water and leaving the line to look after itself.

§ 4. *Double or false casting and lifting line over.*

If I am fishing in warm weather, I usually make a double or false cast every time, as it is not easy to lift a long line from its position downstream and all in one cast place it upstream and across, if there is a high bank behind. By pulling in some yards of line, then lifting and making a short false cast square across, it becomes easy to lift the shortened line high behind and to shoot a great length of it upstream and across. By this means also I am very much more accurate in placing the fly where I want and can be sure of placing it lightly enough to float on the surface. When making a cast to this or to any other place, do not aim the fly at a spot in the water, unless a gale is on, but try to place the fly a foot or two in the air, over the spot where you want it to fall, and let the line drop lightly on to the water.

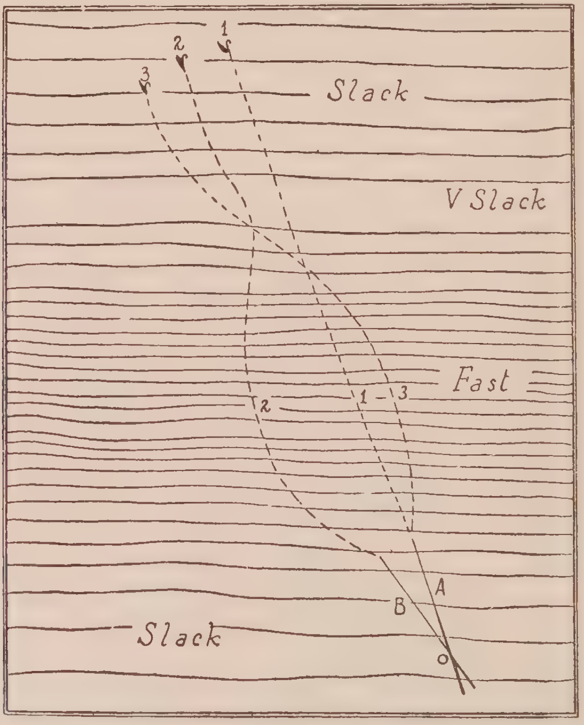


Fig. 68.

Cast to 1. The current acts on the line and 2 is formed. Lift line over to straighten, as in 3, and repeat this as often as it is needed.

Even in February, except in flood water, I do most of my fishing with a greased line and a no. 1 Blue Charm. In broken water, I cast rather more upstream than the orthodox cast of a salmon fisherman, then lift my line off the water and, without moving the fly, turn over a loop of line upstream and *across* to prevent any drag on the fly.

The lifting-over of a line is done to correct a fault, namely, to take the downstream belly out of a line and thus relieve the pull or pressure of the current on the line, which is communicated to the fly and exhibits itself as *drag* (fig. 67). But if the line is proceeding at an even pace and shows no sign of going to drag, there is no need to mend the cast. On the other hand, if the current continues to belly the line, but before it gets a drag, lift again and continue to do so as often as you can see a drag forming (fig. 68). Do not on any account acquire the *habit of mechanically lifting over*, no matter how the current runs. Always have some reason for doing it: to prevent drag or, more often, to control the speed of the fly across the river. A few examples of its use are shown diagrammatically in figures 67 to 71.

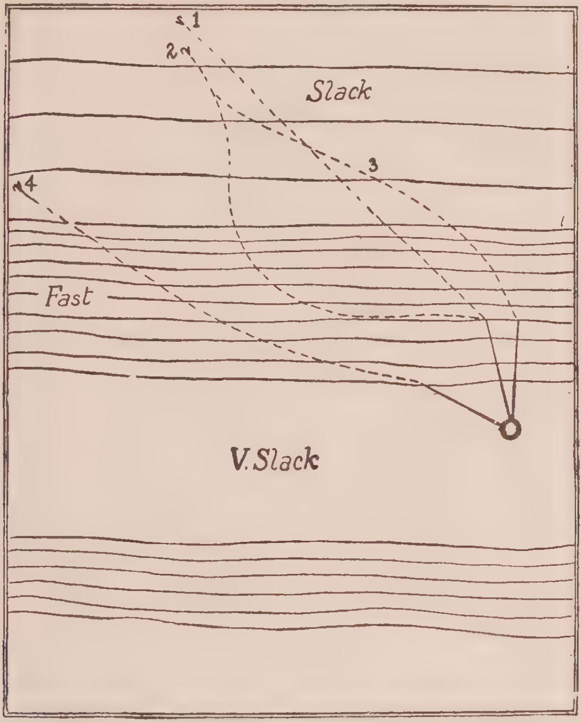


Fig. 69.

Cast to 1. Do not allow the line to get into position 2, but mend it to 3 and prevent fly being pulled upstream. Follow line round with rod so as to get position 4 as soon as you can.

This mending or lifting is effected by the raising of the elbow and by a turn of the wrist, which makes the rod follow evenly a semicircular path, point and butt moving in unison. It is a lift, not a back-cast, and its direction should be across stream as well as up. The line should be removed from the surface of the water by raising the rod almost horizontally and keeping the arm stiff, that is, the point of the rod should usually be no higher than the butt. It should then be swung right or left with a gentle circular sweeping movement and put down where desired. If there is much rough water or a strong stream, it is useful to start lifting the line by a slight movement of the rod downstream, this prevents drag or friction, which would move the fly, and the line comes off the water more cleanly. If the water you are fishing is fast enough to need it, the first lifting of the line should be made immediately the fly has settled and without losing the fraction of a second. At first you will find that, in doing this, you will pull your fly through the water, but with practice you will soon be able to lift a long line right down to the cast without disturbing your fly. And even if you do pull it, the effect will only be felt while it is travelling a foot or so and it will then begin to fish properly. Whenever you feel the pull of the line on the rod, you know that drag has been set up ; something is wrong and needs correcting, because drag prevents the fly from fishing in such a way that a salmon can take it without *coming short.*

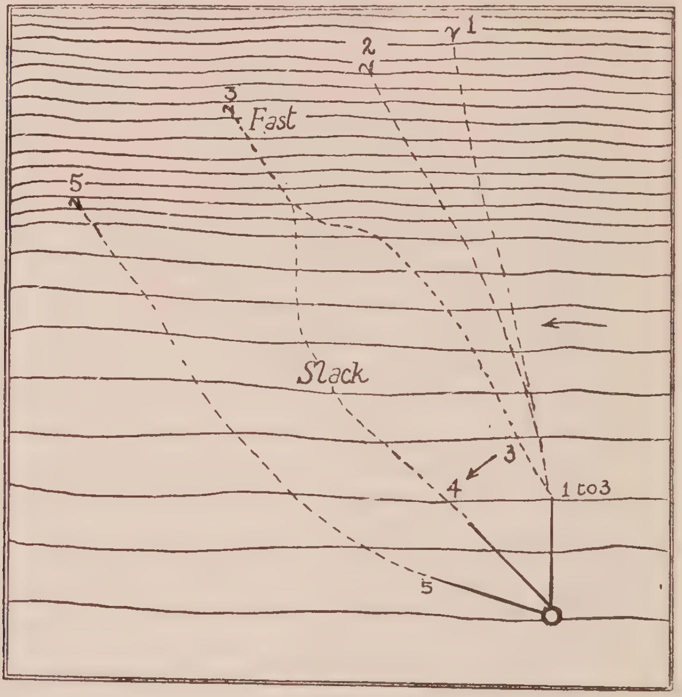


Fig. 70.

Cast to 1. By the time the fly gets to 3 there is an upstream belly in the line; correct this by mending to 4 and then continue to bring rod round to 5. Maintaining tension on line will help to keep the line moving down faster.

In some kinds of water, particularly where the speed increases evenly from where you are standing to where the fly falls, you need not mend the line at all. You will find that the fly fishes for itself, provided you are casting downstream as well as across. But you should never cease watching your line. On the other hand, in very quick or broken water, you may have to mend twice, or even three times, as the fly comes round. All this you will discover by practice and, if you are like me, you will also find that you have added a fascinating series of experiments to the pleasure of fishing and will get fish, when anglers using the old methods do not.

By ‘mending the cast,’ I am able to check the speed of the fly all the way across and to bring it round as slowly or as quickly as I like, close to the bank or into dead water near the shore. The slower the fly travels in cold water (33° F. to 50° F.), the more chance there is of getting the fish to come out of the deeps ; and the same is often true of shallow pools. But when the water is warmer, the question of the speed of a fly is not important ; even then I rarely fish a fly fast. In February and March when the water is cold, fish are generally to be found in the dead deep waters or in slow-moving streams. If in these places the fly hardly moves and begins to sink, draw in line with your fingers very slowly and keep the fly as near the surface as you can, but do not be in any hurry.

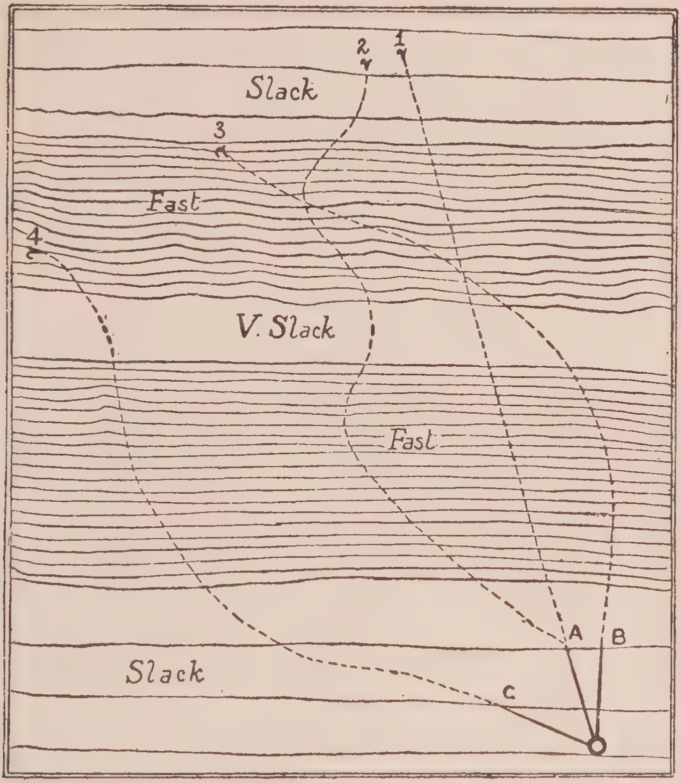


Fig. 71.

Cast to 1. Never let the line get into position 2 and keep on mending it so that it is in position 3 most of the time. When you get to 4 hold rod at C, and let the fast water pull the fly over the slack water.

At any time when you see that the fly is going to drag or the line is getting below the fly, lift your line off the water to a point beyond where the drag starts and place it again upstream of the fly. With practice this can easily be accomplished by a circular sweep of the rod as described before. In fact, the line can at any time be lifted, unless it is held by an eddy you should have noticed beforehand and have made allowances for, by placing it upstream or downstream and thus controlling the speed and position of the fly.

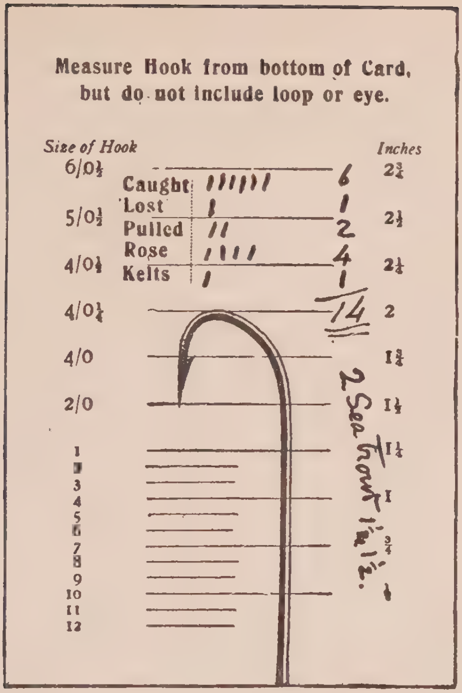
When I am using the light rod and finest tackle, I often cast rather more upstream and across, as in dry-fly fishing, and let the fly and line float and drift down with the current. If the fly floats and skims when the line is fully extended down the pool, straighten the line on the surface and give it a sharp jerk, which should put the fly under ; then fish it round to the bank at whatever speed you like. A jerk on the line, before the line is straight, will make it sink in the nearest eddy and have no effect on the fly. In this way, the advantages of dry-fly and wet-fly are combined, for in the early stages the fly fishes dry and finishes up sunk, just below the surface.

§ 5. *Sizes and patterns of flies.*

As I get so many enquiries asking what I mean by a large or small fly, a reprint of my fishing card may be useful. This shows the sizes of some Dee hooks which have the shank lengthened by a quarter or half an inch, and have a reasonable size of gape or bend, instead of looking like a meat-hook. These hooks allow a very nice neat fly to be tied on them and for clear water should be thinly dressed. No. 1 (one and a quarter inches) and below are called small fly ; anything above one and a quarter inches, large fly. There is no universal standard for sizes of hooks ; to avoid ambiguity, I made out this card and always refer to it when mentioning the size of fly. In February and March I usually fish with a no. 1 hook, ordinary dressing ; as the water gets warmer or clearer I use smaller sizes down to no. 6. In April, as weather and water become still warmer, I have to use even smaller sizes, no. 6 to no. 12 ; but as long as the fish will come for a no. 6 I do not go lower. I only reduce the size of fly as the fish becomes shy of the larger sizes in small hooks.

In really warm weather, in May and sometimes even in April, these ordinary hooks and flies, no. 1 to no. 12, are from my experience too heavy in iron and dressing for clear water ; I then use summer flies tied for me with an extremely spare dressing ; no part of it going beyond the point of the hook. The hooks have a long shank and are made of very fine oval wire. They swim well and in a stream do not hold the water. The older the fly and the thinner the dressing becomes through wear, the better the fish seem to like it, provided the weather is hot and the water clear. I have caught fish on a practically bare hook, on which there was left no body and only the head and four fibres of the wings (see pl. 50) ; and quite a large number on a hook with only the body of the fly left on it. The body of such a fly decreased in size every time a fish was taken out and yet it still proved attractive. I sometimes wonder what a salmon will *refuse* to take and whether this is not, after all, *nymph-fishing for salmon !*

The question is often asked what pattern of fly (no. 1 hook or smaller) should be employed for this method. I have come to the conclusion that

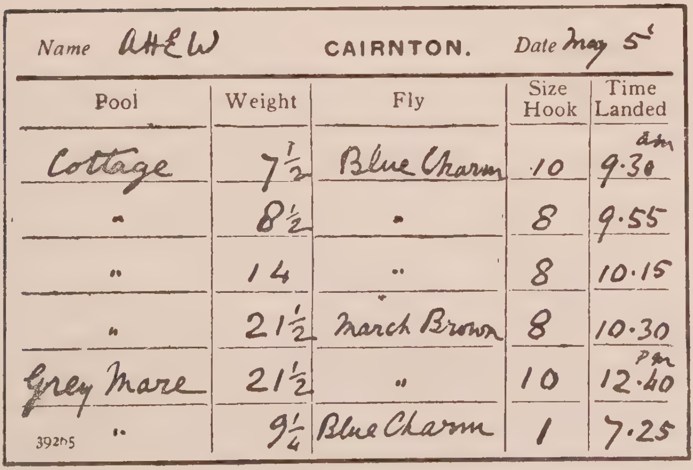


Measure Hook from bottom of Card,
but do not include loop or eye.

Size of Hook	Inches
6/0½	2¾
5/0½	2½
4/0½	2¼
4/0¼	2
4/0	1¾
2/0	1½
1	1¼
2	
3	
4	1
5	
6	
7	¾
8	
9	
10	½
11	
12	

Caught	//////	6
Lost	/	1
Pulled	//	2
Rose	////	4
Kelts	/	1
		14

2 Sea trout 1½ & 1½.



Name AHEW CAIRNTON. Date May 5th

Pool	Weight	Fly	Size Hook	Time Landed
Cottage	7½	Blue Charm	10	9.30 am
〃	8½	〃	8	9.55
〃	14	〃	8	10.15
〃	21½	March Brown	8	10.30
Grey Mare	21½	〃	10	12.40 pm
〃	9¼	Blue Charm	1	7.25

39265

Figs. 72 and 73

THE CAIRNTON CARD.

it does not matter what pattern is used. Formerly I possessed the usual collection most beginners like to look at, a great many of them on double hooks; but all those are now discarded, as a salmon feels a double hook too soon for my liking. I only use three patterns now. Blue Charm and Silver Blue are my stock, simply on the principle that one is more or less black and the other white and so give *me* a choice. But some five years ago, a friend seeing my box and, hearing that I did not think colour mattered at all, offered to bet that I would not use a March Brown for the rest of the season to the exclusion of any other pattern. I took his bet, on condition that I could use any size I wanted. I did not, on any occasion, find the change of pattern made the smallest difference. I got my share, and more, of the fish caught. Since then, the March Brown has been added to my collection and so forms the third pattern. Blue Charm and Silver Blue I have in all sizes from no. 1 to no. 12, ordinary weight of hook, and March Brown, Blue Charm and Silver Blue, sparely dressed on no. 4 to no. 10 light low-water irons (see pl. 24). The last three I only use in warm weather and clear water, starting in some seasons as early as April. I always begin fishing with a Blue Charm and only change it when all the sizes I think right for the day prove no good. I then try a Silver Blue in the size I think will suit the conditions. But if the water is very clear and the weather bright, I use a March Brown and pick out a fly that has very little dressing left on the hook (see pl. 50). In these summer hooks dressed short, a no. 4 is equal to a no. 6 (ordinary fly) in length of dressing, but not in thickness, and so on down the scale. If you raise a fish on, for example, a no. 6, change it to a no. 8 and try again and you should get it; if it does not come again, go on fishing with a no. 8, for that fish has shown you no. 6 was on the large size for that pool or place.

Be careful to employ a cast the gut of which is suitable to the thickness of the hook and the fly in use.

§ 6. *Presentation.*

I find the best angle to present the fly is that which shows it broadside on to the fish; the latter invariably comes some yards to meet the fly, which is taken by it across its mouth. This is the ideal and in straightforward fishing usually happens; the result is that, as the fish is travelling upstream and across, it takes the fly with it (see fig. 74 D) and the cast and line continue to travel downstream. Consequently, in less than a second or so, you have the position shown in figure 74 E, which means that, without your having tightened the line or moved the rod, the fish has hooked itself, for the hold of the water on the cast has pulled the fly across and well into the angle of the jaw. You will find the point of the hook has gone well home and that there has been no need to strike. *Wait till you see the line being held or pulled on the surface of the water* and then tighten, but do not on any account strike. In doing this, *do not lift the point of the rod*, but keep the line all the time on the water and move the point of the rod towards your bank at whatever level it was when the fish took. In other words, continue fishing as if no salmon were after the fly.

There are of course, all sorts of eddies and places where fish lie and all have to be fished differently, so as to present the fly to the fish at the angle at which it is best able to see the fly, most likely to be tempted and not ‘ come short.’ As there is little a fish does not see, the fly ought to behave naturally all the time, as an insect or other live creature would do in the water. Avoid, therefore, any unnatural drag and let the fly move with all the eddies it meets, as will any living thing that is trying to move in the water *with the stream* and across. If you swim across a river, you have to swim at an angle to the stream and make use of all the eddies. Let the fly do the same and act in a natural manner, not as if it were attached to a cart-rope. The greased line, if fished properly (and this is by no means so every time), has no drag and often is all slack and crooked ; but, nevertheless, you are controlling the speed of the fly and the angle at which it crosses the stream. Unless you have lost control of the line, you can at any time lift the line off the water and place it where it should be ; you can thus put the fly where you want and make it *swim* properly.

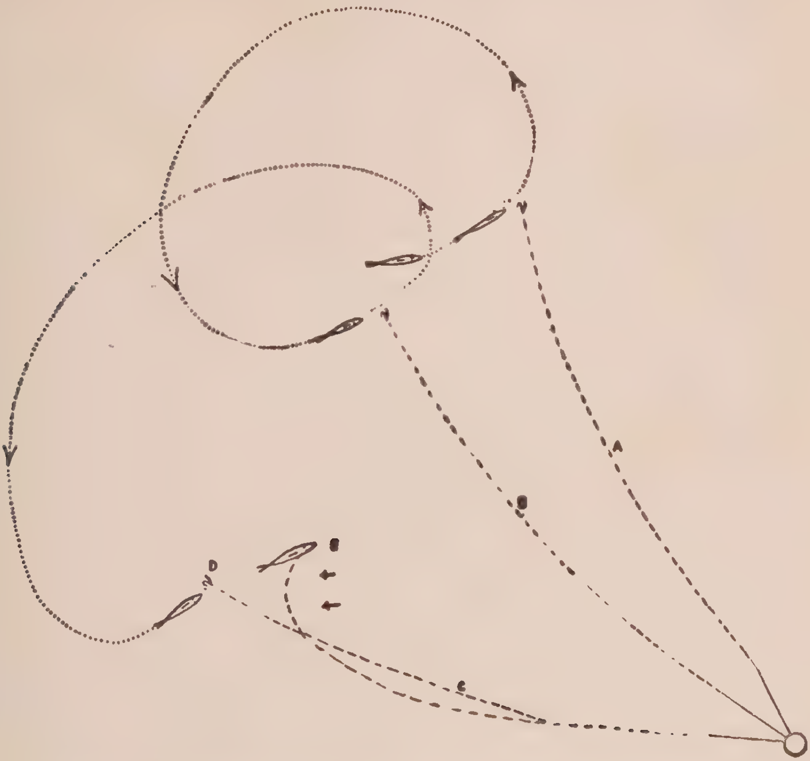


Fig. 74.

A fish has missed the fly at A, has swum round to take it at B, has again missed it and only succeeded in taking properly at D (see page 252).

When you are wading down a long pool or are in strong water, take up your position and start with a short line. Continue to pull off a yard or so every throw, until you have drawn off all the line you can comfortably cast. Reel up more than half of the line and then move to a fresh position about half-way down what you have already covered, start again with a reasonably short line and progressively cast as far as you can. Continue doing this all down the pool. The advantages of this method are manifold. It is so much easier, when you are wading in strong water, than is taking a step or so between each cast, and the fly is shown to the salmon at different angles ; you can fish more accurately and with less trouble ; and it is more interesting, for I find nothing more dull than the ‘ step and cast ’ method.

§ 7. *Hooking.*

When using fine tackle, take great care the rod, line, cast and fly shall all balance and work together for accurate and long casting. Of course, these small flies and hooks do not hold all the fish you hook ; indeed, it is surprising that with such small hooks it is possible to land salmon at all. However, as the fish takes the fly on the surface, you can see exactly the manner of its taking and that is a great help in learning how to hook a fish. You can almost always hook a fish where you like by controlling your nerves and the fly. For instance, when you are fishing a streamy bit of water and a fish takes the fly, you will, if you move or strike at once, most likely pull its nose ; but if you wait until it goes down (and even a little longer), you will find every time you have hooked the fish in the angle of the jaw.

With a no. 1 hook down to say, size 4, it is necessary to tighten *fairly* quickly *when* you feel the fish ; or, if your line is slack, when you see that part of your line near the fish begins to move. The reason of this is that the fish feels the hard iron of the larger of the small-sized hooks and lets go sooner. This is not so with the smaller summer-sizes, unless the line is being dragged. I have often landed a fish and found the cast through the mouth and gills and the hook in the side of the fish. The chewed fly had been ejected through its gills ; a clear proof my line had no drag and was slack. This fish generally takes somewhere downstream of me.

After you have made a cast and when all is on the water and to your satisfaction, lead the line with the point of the rod. The height of the rod-point above the surface of the water should vary with the strength of the stream and the size of the fly. With a no. 1 hook, hold the rod-point from three to six feet above the surface, the higher distance for a fast stream, the lower for a slack one. With a hook from no. 4 downwards, hold the point still higher, varying with the strength of the stream, and the size of the fly, even as high as twelve feet or more when fishing a very small fly in a very strong stream. Under all conditions, always keep the point higher with a short line than with a long one.

When a fish goes for the fly, continue moving the point of the rod round as if no fish were there. With the point of the rod three feet or less above the surface, move it round at the same level ; when it is above three feet drop the point towards your own bank, but continue moving it. Do nothing more until you feel the fish, which will already have been hooked, because the stream has done the trick for you. If a fish misses the fly, I have often seen it come at it a second and a third time in the same cast and finally hook itself. Had I struck or pulled the line, this would not have happened. As you are clearly seeing all this taking place in front of your eyes and are in consequence very apt to pull at the fly or increase

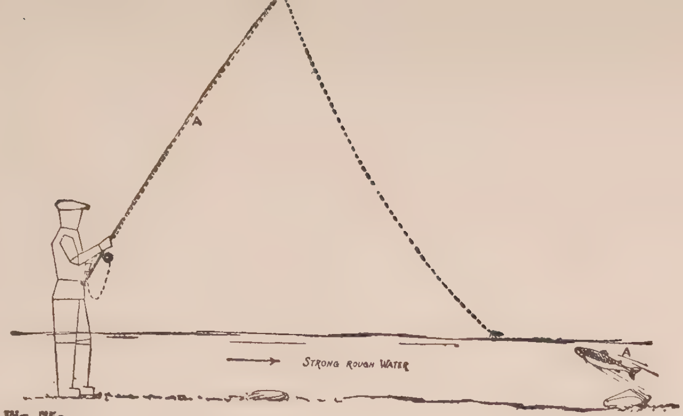

A
STRONG ROUGH WATER
A

Fig. 75a.

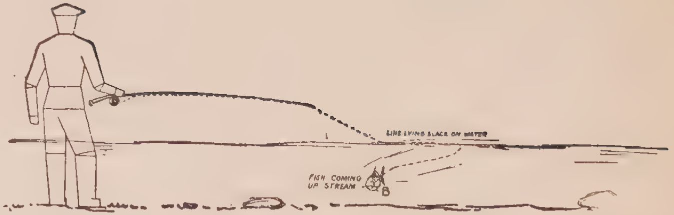

LINE LYING SLACK ON WATER
FISH COMING UP STREAM
B

Fig. 75b.

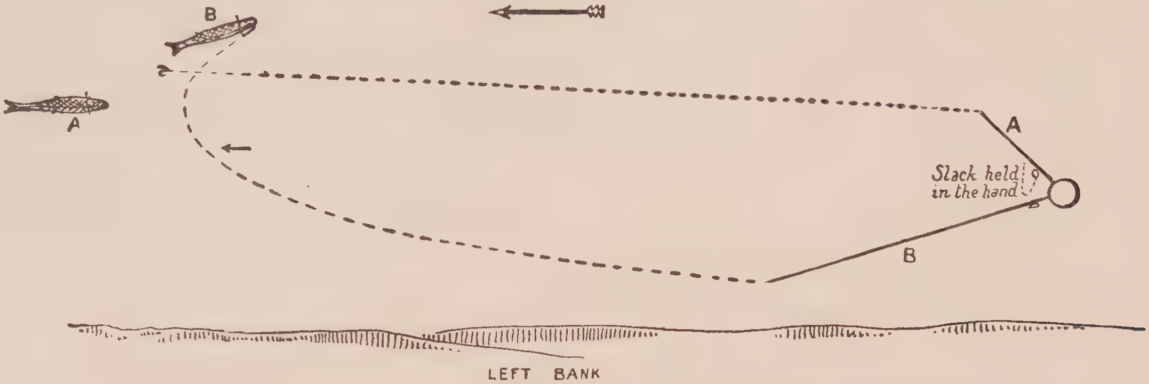

B
A
A
Slack held in the hand
B
LEFT BANK

Fig. 75c.

The rod is held very high (A), so that if a fish takes the fly, when it has arrived below you, slack may be given to avoid a break, by dropping the rod-point downstream and towards the bank (B) its speed, keep your head and force yourself to pay no attention *until you feel the fish.* When a salmon goes for the fly more than once in the same cast, it swims in a kind of a loop downstream and comes round to take the fly broadside on ; and does the same again and again if it misses (see fig. 74). All this takes place just under the surface of the water. You can see it all, and it is very trying to your nerves ; but you must keep them under control, until the iron has gone home. I have often seen fish going through these manœuvres, before taking the fly, and a number of my friends have told me of the same experience. In every instance, the fish appears to have acted in the same way.

There is another difficult fish to hook, that is the one straight below you or that takes the fly at the moment when you begin to draw in the line, after a cast has been fished out. A salmon often takes you then, as though it was urged to do so, because it thought the fly was running away. There is a snatch and a grab, and it is often done like lightning. If you ask an old hand at the game the most difficult position to hook a fish, or where he most often gets a pull without hooking a fish, he invariably answers, ' straight below me.' You can, to a great extent, overcome this trouble, when you are employing a small fly, by keeping the point of the rod up in the air, as I have just described. This gives the fish a slack line. If the stream is *very* strong, and I am using my twelve-foot rod, I sometimes hold the latter perpendicularly. I hold it at this height, in order to give plenty of slack line in the air when, owing to the pace of the stream, there is no slack on the water, and, whenever I see the fish or any movement near the fly, I immediately drop my rod downstream and towards my own bank. If this is done quickly enough, the fish will have a slack line and can take the fly and turn before it gets the pull ; and then the drag of the line from below pulls the hook back into the angle of the jaw. The result is generally a firmly-hooked fish. I do not believe any fish intentionally comes short. The fault lies with the way we fish. When you are fishing slow-moving water and have a very long line out, keep the point of the rod a foot or less above the surface of the water ; there will already be plenty of slack line on the water. You may not be able to see the fly when the fish takes it ; but, if you watch the line near the cast, you will see it stop or being held. With only a short line in slow water, keep the point of the rod about three feet above the surface ; but, in fast streams, hold it very high, in order to get a slack by making a belly in the line in the air. When you see the fish take, drop the point of the rod downstream towards your own bank, which will give the line a good chance to go slack. Do this quickly and only then feel for the fish ; more than likely it has already been hooked and, thanks to the pressure of the current on the line, it is likely the hook has already been pulled home.

§ 8. *The time to fish with greased line.*

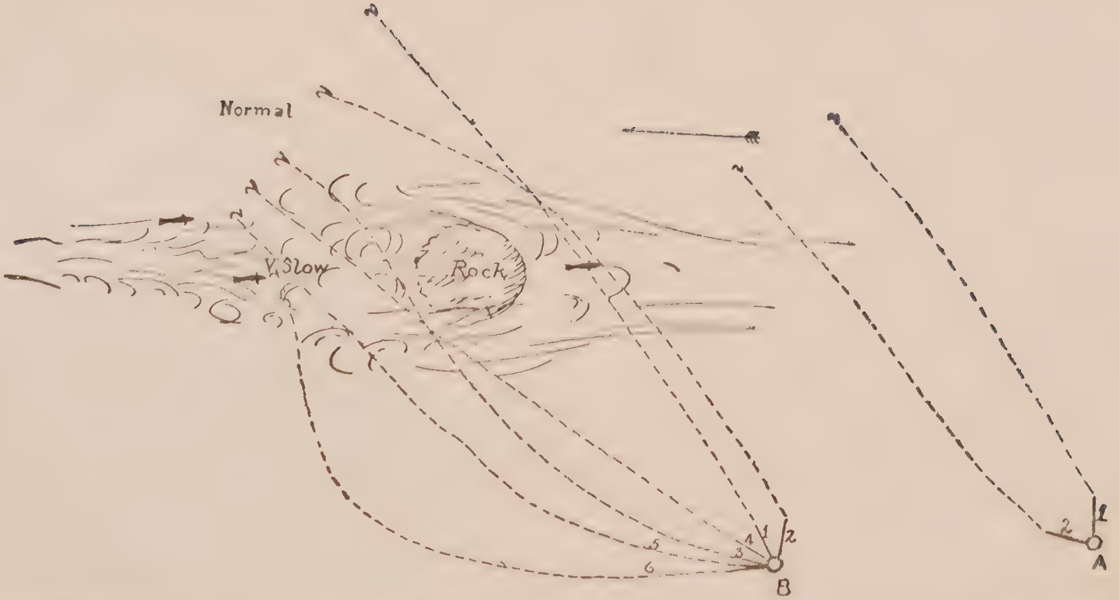
Many people seem to think that surface-fishing is no use, except in shallow water and during hot weather. Experience has shown that it is equally good in icy water, as long as the *air is warmer than the water.* It is also good in all depths of pools, if the water is reasonably clear. My favourite pool in February and March is a slack water on the edge of a strong stream and that pool is twelve to fifteen feet deep. At that time of the year, I usually use a no. 1 hook. Later in the season and in warm weather, the fish lie in the strong stream of this pool and deep as it is they often take a summer hook no. 8. Every day I fish, even in February, I start by using a greased line and only when it fails do I use a sunk line and a big fly. As a result my fishing book shows that forty-three per cent of my fish caught in February in the last ten years were taken on greased line and small fly, sixty-five per cent in March, ninety-four per cent in April, and ninety-eight in May, and so on. I used to think it was no good fishing the greased line and small fly except in warm weather ; but some years ago on an opening day, the 11th February and very cold, by late afternoon my sunk line was frozen up in the rod-rings. As a last hope to end a good day's fishing, I tried my greased line and small fly no. 1 hook, as the greased line does not freeze up so quickly, and managed to get two more fish. That made six ; four on big fly and two on greased line, the last two both caught after four o'clock. Since then I have always fished greased line in all weathers and under all conditions, even in snowstorms, and it rarely fails or is beaten by a sunk line ; but I like to know that *the air is a bit warmer than the water*, for then the fish are undoubtedly more willing to come up to the fly. In early spring when the temperature of the water is more often under thirty-eight degrees Fahrenheit, that of the air is generally higher. On the other hand, the air may well be colder than the water on a May evening, when the water is as much as sixty degrees and over. This does seem to put the fish down. I use, therefore, a big fly under those conditions ; and this accounts for the occasional fish caught by me on a big fly, as late as April and even May.

In hot weather during May, June, or July, when the water is really warm, it pays always to cast across and upstream and to let the fly float and drift down, as it likes, and at times to lift the line upstream to prevent a drag. For three-quarters of the distance the fly travels, it will float on the surface, practically dry. Under these conditions, you will get a lot of fish to take the fly in this position, although it lies flat on the surface and does not ride high on its hackles, as a well-cocked dry fly will. When, however, the line reaches its full extension downstream, give the line a jerk or two to make the fly and part of the cast go under ; this will prevent the fly skimming across the surface of the water. You can then fish the fly across the pool towards your own bank.

There appear to be two almost-distinct periods when salmon have different ways of taking a fly. Until the water and the air get continuously warm (say fifty-five degrees or over), the fish do not come freely to the drifting-down or dry fly. Therefore, when fishing early in the year, do not waste time casting upstream or even square across ; but put the fly rather more upstream than is usual in orthodox methods. Occasionally try the upstream or square-across cast, as you never can tell what a fish will do. If fish start taking the floating fly, continue making the upstream cast, as there is nothing more deadly than the use of a floating fly and the practice of *dibbing* for salmon. We do not often get the right weather in this country at the time the fresh fish are up. If we did, we should get more fish than we actually want to give us good sport.

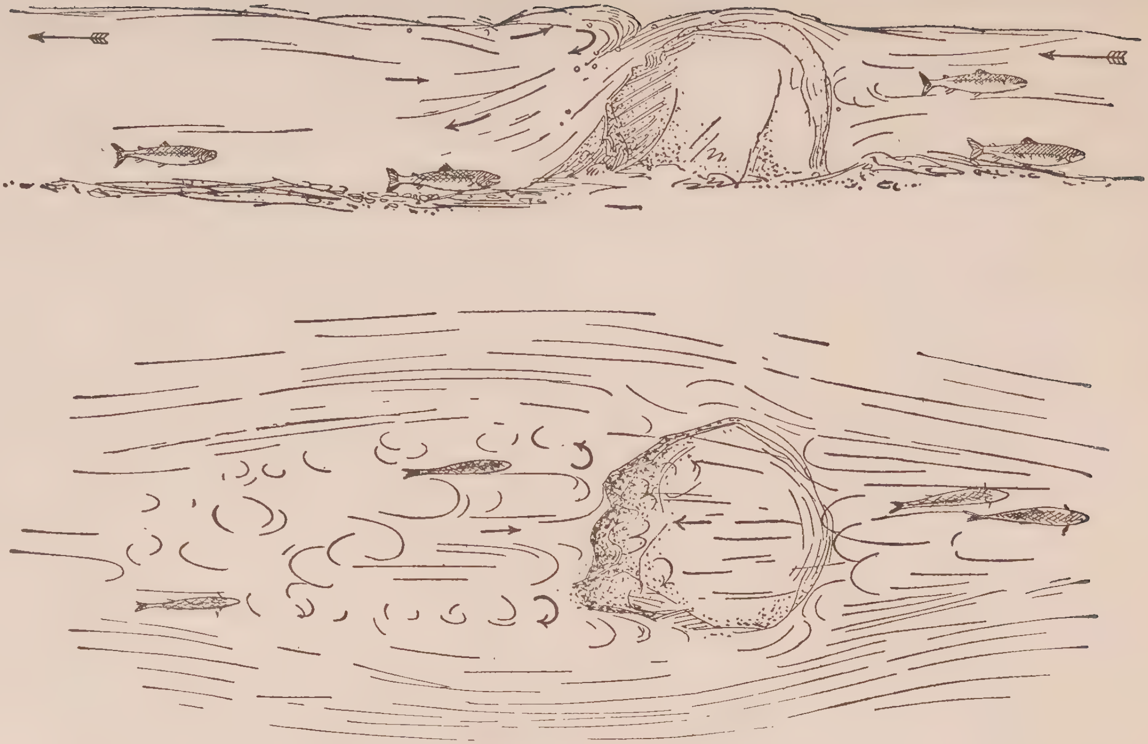
§ 9. *Sundry observations.*

Contrary to old ideas, I do like a very sunny day for taking fish, even when there is no wind. I like to see the fish and go for it, because this


Normal
V. Slow
Rock
1
2
A
1
2
3
4
5
6
B

Figs. 76 and 77.

Show how the difficult area beyond a band of quiet water can easily be covered. B1. Cast and mend to B2. Mend again from 3 to 4. Allow fly to be drawn gently from 5 to 6 by letting rod swing round. Compare the diagram with figures 78 and 79.



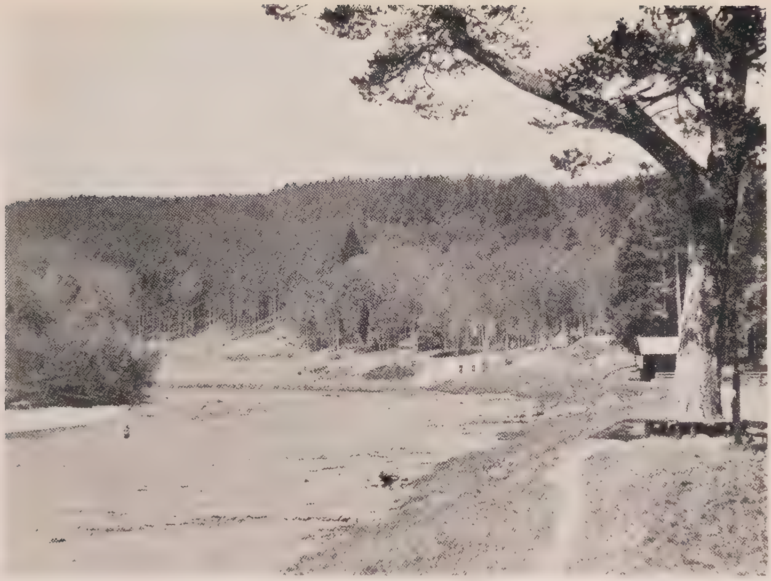
These show the way in which a fly can be sucked down behind a stone. Figs. 78 and 79.

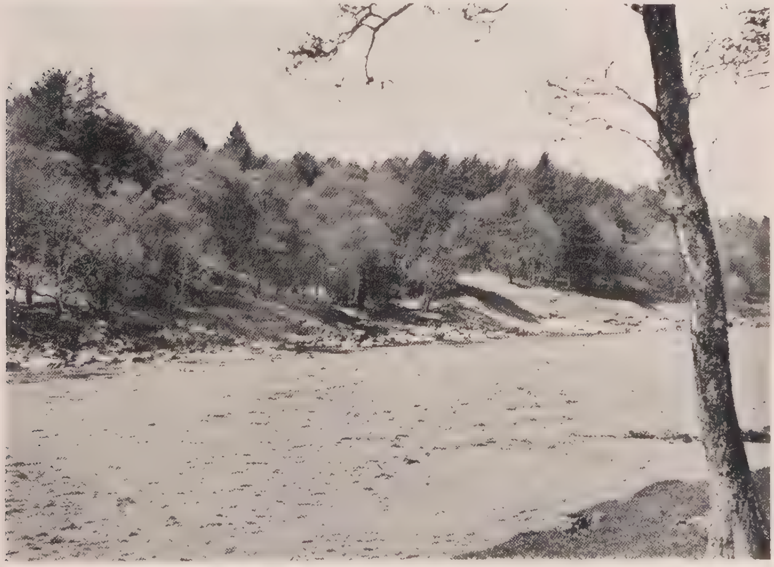
provides far more fun than does the sunk method, and gives more chances of making the most of what I observe and of developing my skill at the game. When you are fishing a greased line, pray for an upstream wind or no wind at all. A wind, blowing contrary to the general flow of the river, makes it very easy to lift the line off the water and place it upstream wherever desired. Another and more important point is, an upstream wind checks the line and keeps it from travelling downstream too fast, which helps you to fish more slowly and to control the fly more easily. Even for an old hand, a strong downstream wind is always awkward in greased-line fishing, for it takes a lot of practice to lift against it, without disturbing your fly, although with experience it can be done, unless a gale is blowing. The only way is to hold back the point of the rod and not follow the line so much, and then make little lifts upstream whenever you can manage them. If you can get into the water, much of the trouble is avoided by fishing more downstream and by keeping above the fish.

To most fishermen the greatest advantage in greased-line fishing is, perhaps, that the head-and-tail rise made by the majority of fish in taking the fly can clearly be seen in all waters. The rise is normally slow and deliberate ; but, in a stream, it is done in a quick yet casual manner. The sight of the fly being taken makes the pulse beat more quickly and most people take a long time before they learn how to get under control the habit of striking. This causes the fly to miss the fish, or the latter is only pricked.

Moreover, you can fish properly many places you could not so fish with the ordinary methods. Take, for example, a bit of dead water on the far side of a stream. You can place a small fly in this dead water and, by lifting the line upstream above the fly, the latter can be kept for some time moving along the edge of the dead water ; and often the line can be lifted several times without perceptibly disturbing or dragging the fly (see fig. 76). Also in fishing an eddy behind a rock you can place a fly on the edge of the stream on the far side of the rock and, as soon as it has settled, you can lift the line again and place it upstream. This allows the fly to wander about behind the rock and, by the time the stream on your side of the rock has got hold of the line, so that you cannot lift again, you will most likely find the fly is held by a fish. Often in this circumstance you will not see the fish take the fly, as the latter has been sucked down by the back-eddy behind the rock (figs. 78 and 79). *Watch the line.* You can continue all down that eddy, fishing in the same way and, as soon as you begin to cover the water below the rock, you will very likely see one or two head-and-tail rises at the fly. By this I mean that, as you begin to search the water below the rock, you will meet other fish, which will show with this head-and-tail rise, because the fly has not been sucked down by the eddy and is travelling near the surface. How far below the rock you may expect it to happen depends upon whether the rock is showing above the water or how deep its top is below, or how strong the current is. But this type of rise will often be observed near to the point where the two streams widen, converge and join the general flow, that is, where the water between them begins to move downstream and gets free of the influence of the eddy or reverse current.

Another great advantage is that, if you can get at the head of a pool well out in the stream or on a jetty, you can fish the water as far as you





Plates 53 & 54

ABERDEENSHIRE DEE (CAIRNTON)

TOP : THE FERROCHS, SHOWING THE EFFECT OF JETTIES AND HOW THEY ENABLE THE ANGLER TO COVER HIS HALF OF THE RIVER.

BOTTOM : THE TAIL OF THE GREY MARE. THE RIPPLED WATER IS SHALLOW AND IT IS UNUSUAL TO FIND FISH LYING IN IT DURING THE EARLY SUMMER.

can cast. After that and without stirring from the place, make as long a cast as you can across the stream, then pay out another yard or two of line and let that fish right down and round. You can, if you wish, repeat this cast from the same place, shooting all the line you can, paying out an additional two yards of line every time and allowing it to float away downstream. Of course, you will lift the line, as often as necessary, off the water and mend it again upstream of the fly, without interfering with the progress of the fly. By continuing this method you can cover forty to fifty yards without moving down. You will probably be able to fish it better than if you had moved down lower and had started casting again, because a fly travels slower across the water at the end of a long cast and a fish you have covered a few times before, as the fly was floating down, may be tempted by seeing it pass so often.

In conclusion, I might remark that some fishermen imagine this method is only good in certain places, such as in the Aberdeenshire Dee ; but many friends have told me they have found it more than useful in most other countries where the Atlantic salmon is caught and in rivers of this country too numerous to name. Others who have adopted the greased line write and say that in the old days, in hot summer weather and low water, salmon-fishing was given up as hopeless (see p. 197 *et seq.*) ; but now this method has given them (not the salmon) a new lease of life.

CHAPTER TWENTY-FIVE

FLY-DRESSING MATERIALS

IN this chapter are set down the different methods of constructing the parts of a salmon-fly and a selection of the feathers generally employed. Owing, however, to the restrictions imposed by Act of Parliament upon the importation of the plumage of certain foreign birds, some of the feathers mentioned below are either unprocurable or are retailed at a prohibitive price. For the sake of completeness I have included in the recipes for the flies the rare feathers and am giving here a short list of those which are now accepted as their proxies.

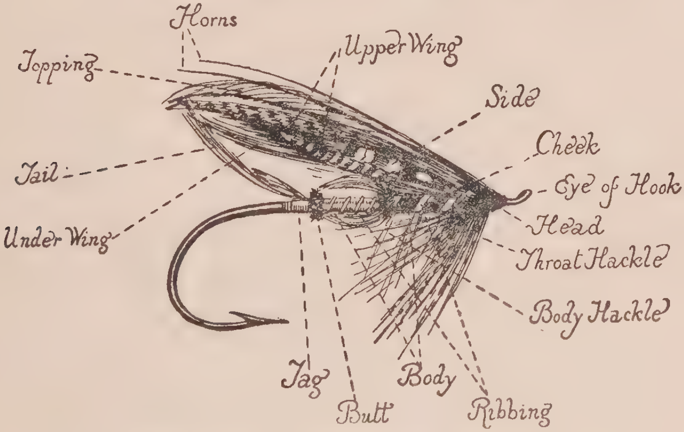
Barred summer-duck feathers must in these days be omitted ; strips from the tail-feathers of Lady Amherst's pheasant are sometimes used instead, especially when long fibres are needed to make up a large wing. The scarlet-tipped feathers that grow upon the breast of the Indian crow (*pyroderus scutatus*) are, as far as I know, unapproached by any other ; the modern substitute is taken from the red-throated thrush of the Sudan and Equatorial Africa (*pyromelana franciscana*[2]), the plumage of which is of a different red and is apt to be rather dull. The rich blue enamel of the feathers of the blue chatterer (*cotinga amabilis*) is inimitable ; that of the English kingfisher (*alcedo ispida*) and of the Indian species (*alcedo Bengalensis*) turn white in the water ; but the wing-coverts of these birds, or the tips of dyed blue hackles, are the only alternatives I know to the feathers of the blue chatterer. The breast and the back-feathers of the cock-of-the-rock were very little used and therefore will hardly be missed. The toucan breast-feather, as a veiling, stands by itself. In texture, brilliance and colour it is far and away superior to the feather of any other bird that can be freely imported. The point of a brilliant honey-coloured cock hackle may have to do duty as the veiling over the posterior joint of the Jock Scott. Another substitute is the golden-yellow feather of *pyromelana capensis xanthomelana* of Uganda, Tanganyika and Kenya.

§ 1. *The tag.*

This consists of close turns of a very narrow gauge of flat silver tinsel, of silver thread, or of silver twist, wound up to the point where the tail is tied in ; or, if it is compound, of a few turns of silver thread followed by evenly-wound turns of floss silk or of wool. Wool has the advantage over floss silk of remaining unaltered in colour after it has been thoroughly soaked. The proportion of the number of turns of thread to the width of the silk and also that of the tag as a whole to the completed fly are most important factors in making the latter look workmanlike. In most flies there should be three, or at most four, turns of thread to the left of the floss silk and the first turn of it should, in flies dressed in the styles of Hale, Kelson and Maxwell, lie just to the right of a line passing vertically through the point of the hook (see fig. 80). The correct proportions, however, are best seen by referring to the illustrations of salmon-flies to be found on plates 1 and 50.

a. *Materials needed in making the tag.*

Very narrow flat silver tinsel ; fine and medium silver thread (that is to say, round-section floss-silk, armed with fine silver wire after the manner of gimp) ; very fine and solid wire, silver and gold ; silver twist ; floss silk ; and Berlin wools. The colours of the floss silks most commonly employed for tags are lemon, primrose, deep yellow, orange and, for the Orange Parson, purple. The particular shade of floss silk used in making the tag is governed by convention alone. It is hard to believe that this and others of the many subtleties in salmon-fly dressing are appreciated by the salmon. But I do think that the paler shades of yellow are as a whole more practical from the point of view of hooking the fish that takes the fly, because the impression is thereby given to the fish that the more solid part of the victim it is bent on capturing is well to the right of the tag. The salmon is thus encouraged to swallow more of the fly, before closing its mouth, than it would, if there were a solid end to the fly. Further, a translucent hinder end to a fly is attractive, because it contrasts with the heavier part of the pattern and yet by its tenuity encourages the salmon to take it with greater confidence, so that ‘ feather-drag ’ (see p. 187) is avoided. Mr Chaytor on pages 36, 37 and 84 of his *Letters to a Salmon-Fisher’s Sons* suggests that the tag could easily be omitted without spoiling any pattern ; and, if the points of view of the æsthete and the tackle dealer are ignored, they certainly could. I believe, however, it does add to the attractiveness of the fly by producing ‘ flash ’ in the same way as will a ribbing of flat tinsel.



THE PARTS OF A SALMON-FLY. (JOCK SCOTT.) Fig. 80.

The question the reader should ask himself is whether he wishes his salmon-fly tying to be severely and exclusively practical. If he does he must leave out all the adornments that add, it is true, little to the efficiency of the fly. But, for my part, I think it is worth while furnishing a pattern with the little things that give a finish to it, the small touches that encourage the dresser to work neatly, so that the result shall be a combination of good workmanship and artistry. I do this, however, without as much as giving lip-service to the established dressings, to follow which blindly leads to enslavement in the Kelson school and to an unfruitful attitude of mind.

Another method of tying tags, which is a great advance on that current in the days of Kelson and Hale, is discussed on page 339.

§ 2. *The tail.*

In nearly all salmon-flies the foundation of the tail is a crest feather of the golden pheasant, known as a topping. Sometimes this is all of which the tail consists ; but many patterns, when they are correctly dressed, have compound tails, in which there is either a feather laid above the topping or tied on each side of the topping, forming thereby cheeks to the tail.

a. *Materials of which tails are made.*

Simple tails : a topping, chosen for its shortness and for its natural curve ; ibis tail ; a tuft of teased-out Berlin wool ; and some strands of golden-pheasant breast-feather. A bunch of tippet strands (the tippets are the feathers forming the ruff which covers the throat and upper breast of the golden pheasant) is found in many seatrout patterns.

Compound tails : the usual feathers which are superimposed upon the topping are taken from the blue chatterer, the kingfisher and the Indian crow ; the sides of the tail are formed of strips from the feathers of summer duck, teal, swan (dyed), scarlet ibis and of other birds, of pairs of junglecock neck-feathers, and also of bunches of tippet strands.

Any fly would, I am sure, be just as attractive if the tail consisted solely of a short thick well-curved topping. The curve of the topping goes a long way toward making the fly attractive to the fisherman ; but, as it is soon straightened out in the water, the shortness and thickness of the tail for its length is of greater practical importance. The topping is extended by the current beyond the bend of the hook and where it is merged with the ends of the wings and that of the topping tied in over the wings. The thickness of the topping ensures a certain degree of luminosity ; while the shortness of it avoids a prolongation of the body of the fly to so great an extent, that the salmon shall be able to seize a good mouthful of fly without running much danger of being hooked (see p. 259). This is known as ‘ feather drag,’ which is experienced by the angler rather more commonly in the spring than at other times of the year. There is a strong underwater pull ; but the line, instead of tightening up, goes slack (see p. 187). Often it will be found that the end of the wing or of the tail has had a tuft torn away. From this fact springs much of the value of the short-dressed fly, in which the tail does not project beyond the bend.

The tail is sometimes omitted altogether ; there is Mr Chaytor's experience to support such a step. On the other hand, the brilliance of the topping is too great an asset to discard. I would, therefore, suggest an experiment be made of tying it in half-way up the body, in the same way in which luminous hackle-fibres are treated in certain patterns of Breton salmon-flies (see pl. 60). It would thus act as a veiling to the top of the body.

§ 3. *The butt.*

The butt consists either of a ring of wool or of a whorl of closely-wound turns of herl. Many flies have a terminal butt which covers the roots of the tail; while a few have jointed bodies, in which butts of either of these materials figure as the boundaries marking off one section of body from another.

a. *Materials for butts.*

The most usual type of butt is that made of black ostrich herl, which is wound as closely as possible, so that the turns occupy a very narrow band of shank and the flue of the herl stands up almost solidly. Chenille is as stout as ostrich-herl is delicate. Though it is excellent for the butts of medium-sized and large flies, those made of it are too wide to be suitable for flies dressed on small hooks. For this reason or some other with which I am unacquainted, this material has fallen out of favour with the majority of fly-dressers. Berlin wool also is employed, either in its twisted state, as bought, or teased out and spun upon the tying silk. In the latter and better method of constructing a butt, the wool is teased out and spun on the silk in a spindle-shaped wedge. Choose the long fibres of the wool, twist the fibres on the silk in a clock-wise direction and catch the far end of the fibres, at the moment of twisting, between the tying-silk and the body. The tip of the left forefinger will do the rest (see fig. 105). This way produces a far more durable butt than taking one or one and a half or two close turns of wool, appropriate to the size of the fly, because turns that ride are apt to slip down over the tag into the bend. In some patterns, peacock herl is employed as the material for butts.

As far as looks go, the two black ostrich-herl butts are the making of a Jock Scott and they provide the fly-dresser with a convenient method of hiding ugly joints in the middle of a compound body. But, from the salmon's point of view, their *raison d'être* is still to be found; and they are exceedingly vulnerable.

§ 4. *The body: some types.*

(i) The Silver Doctor type consists entirely of flat silver or of flat gold tinsel closely wound and ribbed with narrow oval tinsel, silver or gold.

(ii) A body composed of medium-width silver oval tinsel is sometimes found in seatrout flies and is also mentioned by Mr Chaytor as a body for salmon-flies (*Letters to a Salmon-Fisher's Sons*, p. 84). Also refer to Red Sandy, plate 1.

(iii) It is common to find a body dubbed throughout with seal's fur, mohair, pig's wool, Berlin wool, floss-silk, hare's ear, or with some other of the many forms of dubbing. In this the floss-silks or the furs can be shaded through from the tail to the head of the body, as in a Gordon and in a Butcher. The dubbing is then held down with open turns of ribbing tinsel.

(iv) There are also jointed bodies in which the floss-silks and the dubbings are separated from each other by butts, as in a Popham. Often the sections are veiled with a highly translucent feather, as in a Popham and in a Jock Scott.

There are, besides, endless ways of combining types of body to make other types ; but I doubt whether there is any solid advantage in dressing patterns of all these types, except the facility acquired in handling the materials that this practice brings to the fly-dresser.

a. *Materials needed in making bodies.*

These fall under the heads of tinsels, floss-silks, wools, hare's flax, furs and peacock herl. Of floss-silks a fair number of shades should be collected : lemon, yellow, orange-yellow, orange, black, blue, claret, red.

Wools are useful for constructing the bodies of Spey-flies. The most useful shades are orange, black, green, lemon, olive, purple and light brown. These flies vary so much in their dressings, that exactness in shade of the wools used in making the bodies is of little moment. I have found great difficulty to-day in buying Berlin wools in any shade, as other kinds of wool appear to have taken their place ; but there still remains the ancient work-basket, which, if access to it can be had, is almost sure to contain exactly the materials desired.

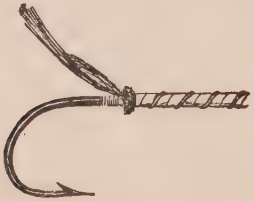


Fig. 81.

The all-metal body.

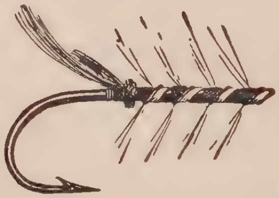


Fig. 82.

A body made of floss-silk, tinsel and thread-ribbing and a ribbing-hackle.

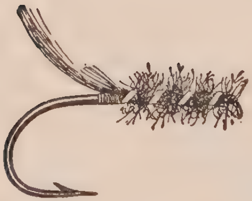


Fig. 83.

A dubbed body.

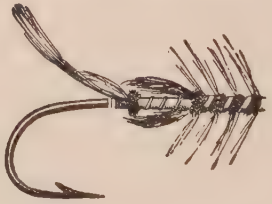


Fig. 84.

An example of a jointed and veiled body.

Hare's flax, that is the fur from the back and flanks of a hare, and the fur from its ear are used as a dubbing for the body of the March Brown, which is, however, a fly one rarely needs, unless one makes a practice of using a thinly-dressed pattern in greased-line fishing for salmon (see p. 248).

The best furs for body-dubbings are those which are naturally luminous and have a kick in them, so that the fibres stand out well from the shank and catch the light. Seal's fur most nearly fulfils these conditions ; further it is easily dyed, is tractable and yet has a resilient quality.

Mohair also will serve, if the right shade in seal's fur is missing, but it is much longer in the fibre and, when wet, naturally clings to the shank in a dank mass. Small wads of seal's fur in the following shades should always be kept in stock : *lemon*, *yellow*, *deep yellow*, *orange*, golden brown, fiery brown, *black*, pale blue, red, crimson, *flame*, green, olive, magenta and *claret*. Any of these shades in mohair are useful, especially those printed in italics ; but, before attempting to spin mohair on the tying silk, you should tear it up, until the average length of the fibres is about the same as that of seal's fur. Keep a small quantity of grey-squirrel fur and of that from the blue rabbit ; these, however, show better in the water, if a little seal's fur or hog's wool of like shade is mixed with them.

Peacock-herl is used in a few small salmon-flies and in some seatrout patterns. Lengths of this material are obtained from the eye-feather of the peacock's tail, some of which provide the green, others the bronze-coloured, herl.

I have postponed a description of the tinsels needed until the rest of the body-materials have been described, so that they may be treated fully.

Flat silver and flat gold tinsel should be bought in several widths. Silver is used far more often than gold and should be bought in large quantity and variety. Oval silver and oval gold tinsel is also needed ; oval tinsel consists of an oval core of floss-silk armed very tightly and closely with narrow flat tinsel. These should be kept in several widths in each colour. They are employed in two capacities : to form a metal body of closely-wound turns and to act as a ribbing of open turns, either over floss-silk or a dubbing or over a metal body of flat tinsel.

When oval tinsel is wound over a metal body it serves two functions : it holds down the flat tinsel, so that the edges remain flush, even after rough usage or after a salmon has had the fly in its mouth for a considerable time. It also acts as a guard to the ribbing hackle in such patterns as the Silver Grey. Embossed tinsel is rarely used, except in the body of the Dusty Miller ; a small quantity of it in silver and in two widths is all that is ever required.

Silver thread is used for the body as well as for the tag. In Spey-flies it is employed freely to produce the characteristic ' cross-gartering ' effect, as in a Green King and a Purple King. It is used in the Black Ranger (or silver twist may be used instead), because the main ribbing tinsel is flat and therefore affords little protection to the ribbing hackle. In the Black Doctor the ribbing is usually oval tinsel, but, though it guards the delicate hackle to some extent, a ribbing of flat tinsel followed by silver twist is to be preferred.

Very fine silver and gold thread, as well as fine silver and fine gold wire is needed in many seatrout and in low-water patterns and small quantities of them should be bought. The best source from which these can be obtained is a masonic tailor, of which there is sure to be one in most large cities.

All kinds of tinsel and wire are very easily spoiled by becoming tarnished through exposure to the air. I strongly recommend the stocks of these materials be wound upon slips of dry cardboard, wrapped in black tissue-paper and put into small envelopes. In this way air is, to a great extent, denied access to the metal and the silver or gold will remain in the state in which they were put away ; but great care ought to be taken that the fingers are free from moisture, which is sure to have been transferred to the tinsels during the process of rewinding them on the cards. This should be done by drawing them through a piece of chamois leather.

Unless the wood of which these tiny reels are constructed is absolutely dry, there is a risk of the tinsel wound upon them being ruined. With cardboard the same care is needed; probably the best way is to put the cardboard slips in the oven, until all moisture is driven out, and then to cover the slip with a small piece of black tissue paper, before winding on the tinsel. All this trouble is well worth taking for expensive material; and you ought to buy only the best. But if tinsels are left on the reels, keep them in a perfectly air-tight box.

b. *Veiling.*

If the reader will turn to plate 1 and to the figure that illustrates the parts of a salmon-fly (80), he will notice some golden feathers covering the upper and lower surfaces of the posterior section of the body. This is known as the veiling. The essential quality demanded of a feather used for this purpose is that of being luminous and translucent.

The usual veiling-feathers were the lemon-coloured and the yellow toucan breast and throat feathers and those from the breast of the Indian crow. These feathers figure in Jock Scott and Popham respectively, but both of them are becoming increasingly difficult to obtain (see p. 258 for substitute).

§ 5. *Hackles.*

By the word *hackle* in salmon-fly dressing is understood the feather that is taken in open turns up the body; the feather that is wound at the shoulder is termed the throat.

a. *Undyed poultry hackles* play a smaller part in the salmon-fly than in the trout-fly. But large dun hackles of the finest quality are essential to the efficiency of many wingless seatrout patterns, for grubs, or palmer-flies, and also for the dry flies occasionally used in salmon-fishing. Collect some cuckoo or creel feathers from the Plymouth Rock; these are alternately marked sepia and white (see *Trout Fishing from All Angles*, pl. 38): also some badger hackles, which have a black list and white or cream fibres and figure as the ribbing-hackle for a Silver Grey. Keep a few choice honey duns, blue duns, gingers and reds, the last-named from the Rhode-Island Red cock. Stiff black hackles are useful for several patterns; but take care to see they are deep black and are not chalky on the underside. *Coch-y-bonddu* hackles are those which have a black list and black fibre-tips, while the intervening area is a rich or a yellowish brown. Store away some of these, as well as some of the feathers from the side of the tail of the Spey-cock; these are the body-hackles of the old Spey-flies. The latter feathers are difficult to obtain, because the bird from which they come is very little bred; but, occasionally, satisfactory substitutes can be procured from the common barn-door cock. There is a great deal of variation in their shades, from red-brown to iridescent green-black; but, as the fibres are all but opaque, colour matters far less than mobility upon which the effectiveness of the Spey-flies depends.

b. *Dyed poultry hackles* are employed extensively as ribbing hackles and as throats. The colours most frequently used are lemon, *yellow*, orange, *flame*, brick red, dark red, scarlet, *magenta*, *claret*, fiery brown, *pale blue* and grass green. Those printed in italics are especially valuable in all sizes and should, therefore, be bought on the neck, already dyed. The best shade of pale blue has a greenish hue. Before buying hackles to fill this want, compare them with that employed by a first-rate dresser as the throat of Silver Doctor, Silver Blue, or Blue Charm. In fact, I advise anyone starting to make a collection of materials to buy already dyed the hackles and other feathers that have to be dyed; dyeing feathers at home is good fun in a way, but it is very difficult to replace the natural grease that must be removed from the fibres, before the colour will bite. Thus is lost much of the sheen on the surface of the hackles.

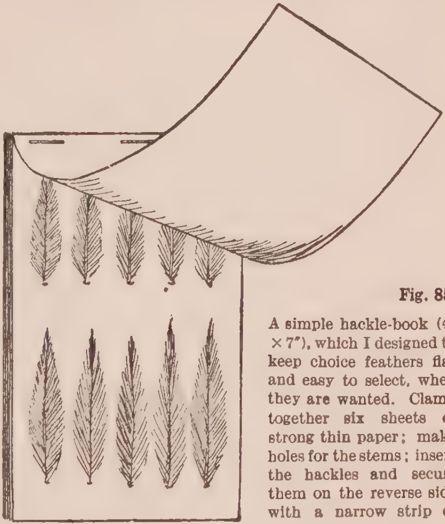


Fig. 85.

A simple hackle-book (4″ × 7″), which I designed to keep choice feathers flat and easy to select, when they are wanted. Clamp together six sheets of strong thin paper; make holes for the stems; insert the hackles and secure them on the reverse side with a narrow strip of gummed paper.

c. *The coarse-fibred hackles* are manifold in their sources, some of them being used for the ribbing-hackle; while others are suitable only as throats.

Upon the head and the shoulder of the heron grow the long-fibred black hackles and upon the breast and rump of the same bird soft grey hackles, which are a special feature of the flies named after the Scottish Dee. These hackles are very mobile and are extremely long in the fibre; the beginner who is laying the foundation of his collection of feathers will probably be surprised at the size of the hackles suitable for these patterns. The body-hackle of the Avon Eagle and the Yellow Eagle (called locally 'Yally Aigles') are supplied by the long greyish-brown feathers from the thigh of a golden eagle. These hackles are appropriately rare. It would, indeed, be a great pity that a demand for their feathers should in any way reduce the sadly-depleted numbers of that magnificent bird.

The speckled feathers from the breast and back of the guinea-fowl or *gallina* are employed as throat hackles; but the white-spotted feathers which are also to be found on the same bird are of little value to the salmon-fly-tyer. The teal, the widgeon, the pintail and the mallard have some good spoon-shaped hackles under the shoulder of the wings and on the back. Choose and sort into sizes those that are well marked. The Cock of the Rock has a large number of brilliant feathers of an orange that is hard to equal, but they are very expensive and a licence to import them is very difficult to obtain. The red breast-feathers of the golden pheasant are pleasant to work with and form a throat-hackle which is translucent, mobile and rich in colour. This feather is used as the throat of Childers. The same bird bears on its back feathers that are golden-yellow in shade, but are rather weak, except when they are plucked from the region where they meet the rich-red plumage mentioned above. As they are long in the fibre and very mobile, it is worth while dyeing them suitable colours, such as magenta, for use in large and sparsely-dressed patterns.

The wing-coverts of the jay, when they have been stripped of most of their centre quill, make good throats for Blue Marine, Popham and for many of the standard Irish patterns. They need, however, most careful treatment and only the most brilliant of the coverts should be employed (see p. 304).

Small salmon-flies and seatrout-flies offer a chance of making some use of the feathers from the rump of the corncrake, from the rump of the snipe, from the rump of the grouse, from the parts close to its wings and from the rump, back and breast of the partridge. The crimson and the western horned pheasant (*tragopan satyra* and *T. melanocephalus*) of India has upon its back and rump broad long-fibred feathers with a central silvery spot that make excellent hackles for large sizes of March Brown, suitable for low-water fishing. There are sepia and also brown-mottled feathers, with which a similar effect can be obtained, on the back of the hen-ptarmigan, in the wing-covert region of both peahen and bustard and the secondary and tertiary wing-coverts of the snow-partridge (*lerwa lerwa*).

§ 6. *Wings.*

There are, in use to-day, at least six distinct ways of winging salmon-flies. These will be given only a brief description here, as there are on the pages to which reference is made detailed accounts of the selection of the feathers and of the mechanics of winging the flies.

i. *Simple-strip wings* (p. 280) are composed of two strips of web cut from a primary, a secondary, or a tail feather, and put on in the same manner as are the wings of an ordinary sunk trout-fly. There are, however, four distinct ways of tying in these strips and four distinct effects to be achieved by so doing (see fig. 110).

ii. *Dee-strip wings* (p. 287) : there is a characteristic method of winging flies that tradition has attributed to the Aberdeenshire Dee and it is the cheapest way known of creating an attractive fly, attractive by virtue of its shape as well as by its translucency and slimness.

iii. *Whole-feather wings* (p. 296) : in these entire feathers are tied in pairs, back to back, as in the Ranger series ; or bunches of herl, sword-feather, or golden-pheasant topping are employed to take the place of a regularly-constructed wing.

iv. *Built wings* (p. 294) : the materials are tied in successively, the last instalment partially embracing the feathers attached during the preceding stage and thus allowing them to be seen. Dr Pryce-Tannatt describes the effect by comparing it with the partial overlapping of slates on a roof. He also states very truly that the difference between this type and the next, th mixed-wing type, is sometimes hard to see. It is, at best, an academic distinction; although in theory the fly dressed with built wings should be more bulky than one dressed in any other of the ways described here. Built wings were, I believe, first so described by Colonel Hale, page 85 (Jock Scott).

v. *Mixed wings* (p. 291): this kind of wing should have a foundation of whole feather, covered with a sheath of married strips; the upper portion of this is, in its turn, covered with a narrow band of duck or similar feather, or with two strips married to form a narrow band (Silver Doctor).

vi. *Gut-wings*: a bunch of gut of a size suitable for use in trout-fishing is tied in as a wing. The tawsy ends of strands of 2x, 3x and 4x gut, as well as pieces of old and unreliable casts, make excellent wings. The special feature of the Baden-Powell Prismatic flies was a wing made of a bunch of brilliantly-coloured fibre.

vii. *Palmer flies*, known as grubs, are occasionally used for salmon; and the local flies for the Breton rivers are large hackle-flies of the same type as the Blue Upright of Devon. An illustration of both these types will be found on plate 60; see also page 312. These flies are exceptionally translucent and are not employed as much as they should be.

a. *A list of wing-materials.*

If I were asked to name the bird that in my opinion was the most useful to the salmon-fly dresser for the construction of wings I should make haste to reply, the turkey. The white variety of that bird produces tail-feathers of greater length and stronger in the fibre than does the swan, both of which find, when they are dyed, a place in nearly every fully-dressed salmon-fly with built or mixed wings. The colours of the turkey and the swan dyed tail-feathers I have employed most frequently are yellow, orange, cardinal-red, pale blue, green and flame. Feathers from the tail of a swan in their natural state are rarely used; but the colours of the domestic turkey vary so much in shade, that there is considerable choice in the colours of their tail-feathers.

In Hungary and in Syria are bred cinnamon-coloured turkeys that bear tail-feathers of two distinct shades: the pale-brown feathers, called cinnamon, and the dun feathers, which have near the tips pale slate-blue bars. There is also a dark-cinnamon variety of these feathers, the tips of which are very pale and, when they are in the water, are most luminous; this is the most valuable shade of all.

The ordinary English turkey has tail-feathers of dark mottled-brown, generally tipped with white. The grey-mottled turkey-tail, for which I have rarely found any place, but is much used in the old Eden flies, has a grey ground freely veined and shaded with ashen pigments, a black bar near the tip of the feather and the tip itself white. It is difficult to get turkey-tails in the best condition; they are often crumpled at the edges or have awkward undulations in them; these can be smoothed by steaming and pressing them out with the finger-tips. The chance of finding in the poulterer's shops tails from other than the brown-mottled turkey is small, because imported turkeys are stripped of the large tail-feathers before being packed for transhipment; yet it is always worth asking the man who is responsible for the plucking to keep a look-out for the infrequent home-bred cinnamon birds.

The golden pheasant has already been mentioned as the source of toppings, tippets, breast-hackles and back-hackles. It also provides material for the wings in the shape of the bright-red sword-feather and of the yellow-brown tail-feather. The toppings found on Lady Amherst's pheasant are few in number and poor in quality. The crossing of this bird with a golden pheasant imparts a rich-red tone to the crest-feathers and makes them much more resilient. The greatest care should be taken in buying a tail-feather of the golden pheasant to see that it has come from the centre of the tail and that it is in good condition. Inferior specimens have the web on one side of the quill much longer than that on the other and are irritating to work with, because the fibres of all but the best feathers obstinately refuse to marry with each other or with the fibres of other feathers, such as swan-pinion or turkey-tail, or, at least, are persuaded with considerable difficulty to do so.

Tippets are feathers which excite my intense admiration, when I see them sliding and adjusting themselves on the neck and upper breast of the golden pheasant. I think instinctively of plate-armour. Their under surface is chalky, dull and without the enamel deposited on the upper surface and on the tips, which is the main reason why this feather is so attractive a factor in the make-up of many salmon-flies. But the most valuable quality of the tippet is the translucence of the fibres (see p. 322). The tippets of the golden pheasant are red-orange to vermilion with almost black bars ; in those of the Lady Amherst's pheasant the place of the red-orange is taken by a brilliant white and the bars are the darkest green you can imagine. The sword-feathers, which are particularly good in cross-bred birds, are the long quills on each side of the tail ; they are used, as far as I know, only in Childers and Avon Eagle. The argus and Lady Amherst's pheasants have beautifully-marked tail-feathers ; the former is darkish with bold ocellate markings (the broad secondary is purplish-brown with small white spots) ; the tail of the other is white, broadly barred and irregularly pencilled with greenish-black. Be particularly careful to buy only feathers of the best quality obtainable, otherwise the process of marrying the strips becomes a labour comparable with those of *Tantalus* and *Sisyphus*. This will mean you will be asked a long price and really good feathers are worth it.

The most useful feathers to be obtained from the peafowl are the secondaries from the wing of the cock and some of the small coverts to use as hackles. There are also the eye-feathers of the central portion of the train, which are the source of what is known as quills (that is, the strands stripped of flue) and of herl (the strand with its flue intact). The sword-feathers that are used in the wing of the Jock Scott are situated on the edge of the train, that is to say, they are the outermost pinions of the tail. The secondaries provide a well-marked cream-and-sepia web on one side of the quill only ; on the other there is an area with less definite markings, which is often thrown away, because it is unsuitable for mixing with swan-tail and turkey-tail to form wing-sheaths. I have found, however, strips of web from this side of the quill can be employed as the wing of a salmon-fly, instead of using brown mallard or turkey-tail ; and a very unassuming, though successful, fly is the result.

A few of the centre tail-feathers of the common hen-pheasant should be obtained for winging small summer patterns and for seatrout-flies, such as March Brown. The two centre tail-feathers have webs of equal width ; if side-feathers have to serve, the strips should be cut from corresponding feathers on opposite sides of the middle. The side tail-feathers of the cock-pheasant are also useful.

The common species of wild duck bear feathers that the orthodox salmon-fly can hardly do without : teal, mallard, widgeon and pintail ; all of them have useful feathers on the back and breast, which can be employed as throat-hackles. The teal is, if anything, the best-marked of these birds. In addition to providing hackles, the mallard bears upon its back, near to the wings, half a dozen pairs of bronze-coloured (grey-rooted) feathers, which are used extensively in winging seatrout and salmon patterns, especially the type known as Spey-flies. These feathers should be collected about January and early February, when they are at their best ; feathers taken from birds killed when they are out of condition are difficult to handle owing to their tendency to split, fibre from fibre, and their refusal to marry again. I have found it a good plan to store duck-feathers, which are to be used for winging, in separate envelopes according to the side of the bird from which they have been taken. Summer-duck or wood-duck is a rare and a protected bird ; its feathers always were very expensive from the time when first the value of them to the fly-dresser was generally known. The barred feathers have a wonderful band of gleaming white, quite unapproached in brilliance by any other feather of which I have knowledge.

‘ There are bustards on the wide downs near Brighthelmstone ’ (Brighton), wrote *Gilbert White* in chapter vii of his *Natural History of Selborne*—would there were still !

Bustard and Asiatic-florican wing-secondaries and tail-feathers are employed in strips to marry with strips of swan, turkey and other feathers in the sheath of a mixed wing and also are tied in as simple strips in several seatrout flies, such as Bustard and Orange. Secondaries from the bustard have a deep-cream ground with dark-sepia marbling and vermiculation ; those chosen should be well-marked and free from any raggedness at the edge, especially towards the tip, which denotes a lack of condition in the bird when it was killed. If some well-barred florican feathers come your way, guard them jealously, as you would fine gold !

Jungle-cock neck-feathers are used as sides to the tail in some patterns (see p. 307) ; they form the wings in other flies and occasionally the cheeks, that is, the last pair of feather put on close up to the head (see p. 284). When buying a neck of jungle-cock, which is easily the cheapest way to get them, see that the edge of the enamelled spot at the tip is intact, is free from any sign of splitting and is a rich ivory-white in tint.

I advise any man who is starting fly-dressing to spend a little more than he had originally bargained for, so that he can obtain the rarer feathers in bulk and on the skin where they grow. The same applies to the feathers of the Indian crow and of the toucan. To know the birds as a whole and to be able to indicate exactly the part of a bird's plumage from which certain feathers have come is real knowledge that is sure to be useful one day. That is why I also advise a collector to obtain his duck-hackles from the birds themselves and to make notes of the areas upon which grow feathers, likely to be of use to him. Teal, widgeon and the other ducks are all good eating and cost the same, with or without their plumage. Or, if lack of money be an unsurmountable barrier to the course I have suggested, the skins of all the birds that fly-dressers prize so highly can be seen and the feathers carefully studied at the Natural History Museum in South Kensingtonand probably at provincial museums.

The Indian crow provides a small delicate feather, yellow-red in colour, which is used in the formation of some tails, as a veiling (see p. 264), as cheeks to the wings and, in large sizes, as one stage in a whole-feather wing (see pl. 50). The epithet 'Indian' given to this crow is misleading. It refers to the descendants and colonial subjects of the *Incas*, who now dwell on sufferance in the territories of Colombia and the Guianas, where this bird is resident.

The blue wing-coverts of the kingfisher are used as alternatives to the prohibited feathers of the blue chatterer of Brazil and Central America for the cheeks of such patterns as Jock Scott and Durham Ranger. They are poor substitutes, because the upper surface is not as brilliant and the feather itself turns chalky when it is thoroughly soaked.

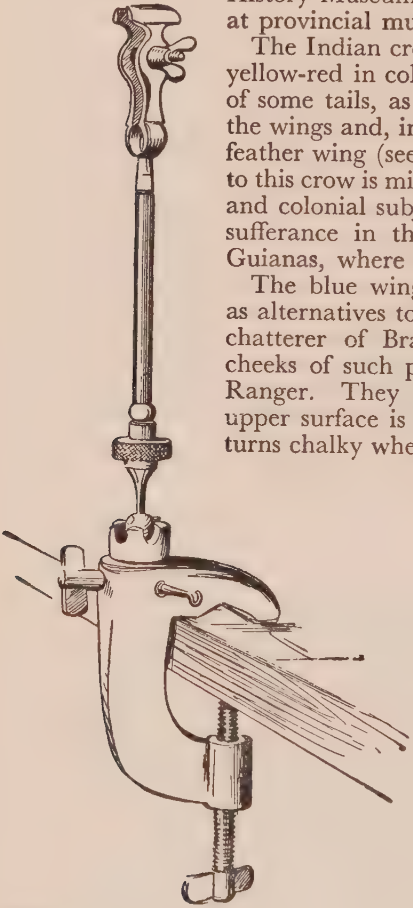


Fig. 86.

ONE TYPE OF VICE.

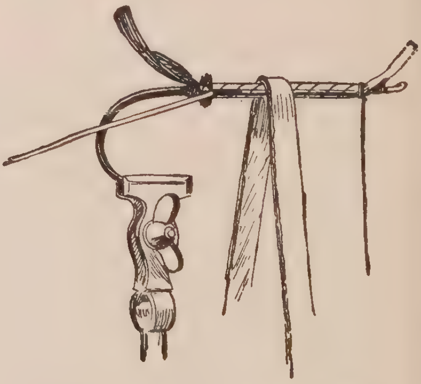


Fig. 87.

HOW TO POLISH A TINSEL BODY.

The toppings of the golden pheasant, one or two of which are tied in over the wing to add a finish to the fly and to give it a watery and sparkling look, are extremely beautiful feathers in themselves. In colour, they are like that of a rich hock with just the amount of that wine's clearness; occasionally the ends of the longer toppings are of the colour of light sherry (see pl. 1).

The horns of a salmon-fly are made of two fibres of blue-and-yellow or red-and-yellow macaw-tail.

§ 7. *The tools required in dressing salmon-flies.*

It is open question whether a vice ought to be used in tying salmon-flies; but the simplest answer is that, even if one habitually dresses flies with the aid of a vice (fig. 86), one should, on occasion, be able to dispense with it, so that, given a hook, wax, some silk and a few feathers, one is completely independent of light, place and heavy luggage. The great advantage of tying without a vice is that it is always possible to turn the fly round in the course of its construction and to make adjustments accordingly. On the other hand, the process of tying-in wings and feathers that must be squeezed, in the manner of a concertina, can best be done when the fingers have full play with both hook and material. The bodies, however, especially of such flies as Jock Scott, Popham and Silver Doctor, are best done when the hook is solidly held in a vice. Delicate feathers call for delicate handling and silver bodies are less likely to become tarnished, the less they are handled. My own opinion is: always use a vice.

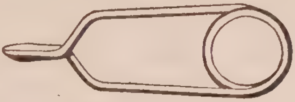
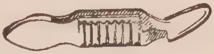


Fig. 88.

HACKLE-PLIERS.



ARTERY-FORCEPS.

Fig. 89.

At least four pairs of reliable hackle-pliers (fig. 88) should be available, one of the pairs having been chosen for the strength of its grip to hold ribbing-tinsel under a good strain.

The most practical way of covering a body completely with flat tinsel is to hold the latter between the finger and thumb and wind it on very, very tightly. When the body has been finished, burnish the tinsel with a long narrow strip of chamois-leather to remove all traces of moisture, left by sweaty fingers (see fig. 87). But oval tinsel and flat tinsel, used as a ribbing over floss or dubbing, cannot be polished in the same way and it should be put on tightly by the aid of very strong pliers, so that it shall not be soiled.

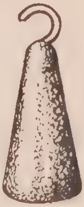


Fig. 90.

A lead used in sea-fishing makes an excellent weight to hook on to hackle-pliers.

See that the jaws of the pliers meet evenly at the extreme edges, which ensures the thin materials, such as hackles, being firmly gripped. A pair of artery-forceps of the type recommended in the *Trout-Fishing* book of this Library should be used in winding the hackles of seatrout-flies; they hold brittle and fragile feathers more safely than do the ordinary kind (see fig. 89).

A darning-needle should be fitted into a convenient handle and used as a stiletto to pick out dubbing, over which ribbing-tinsel has been fastened down; and one of the old-fashioned stilettos used in embroidery is a great help in putting a good shape into the gut-loop. A pair of fine-pointed forceps are handy in picking small feathers off the cloth or out of the place where they are stored. Several pairs of scissors will be required; one pair strong enough to cut wire and tinsel and two pairs of the manicure type, one straight-bladed and the other with curved blades.

A small penknife is essential in splitting down the centre the quill of turkey tail-feathers and in paring the pith away from a jay-hackle. It is also quite easy to split the upper and narrow part of the quill of turkey tail-feathers with a safety-razor blade fixed in a wooden handle. Compare this list of tools with that on page 313.

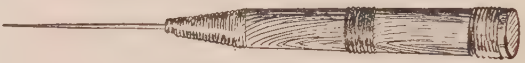


Fig. 91. A HOME-MADE STILETTO.

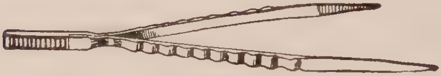


Fig. 92. FORCEPS.

If the fly-dresser intends to devote some of his winter's evenings to fly-dressing, he will do well to buy a daylight reading-lamp, by the aid of which he will be able to choose the right shades of his materials and see his work clearly without running any risk of straining his eyes.

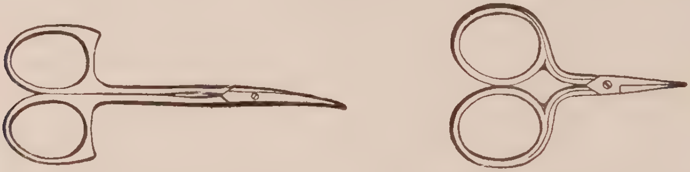


Fig. 93.

CURVED MANICURE SCISSORS. FINE-POINTED EMBROIDERY SCISSORS.

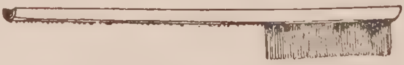


Fig. 94

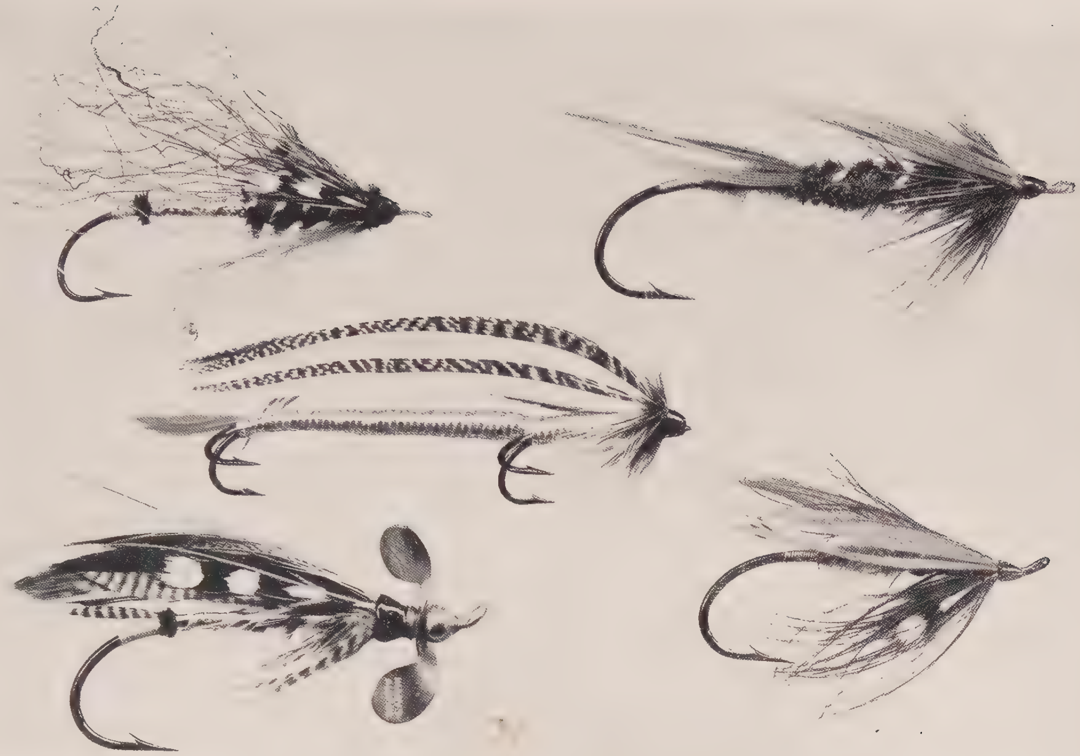
This is a brush made of quill and web of a large pinion, which I use in stroking back the flue of ostrich-herl.

Another simple device of causing the light, in shining on your work, to be diffused is the etcher's screen. This consists of a frame, conveniently large, on which is stretched a sheet of the pale-blue glazed linen commonly employed in an architect's office. This frame is supported or suspended between the source of light and the work. For the idea, which produces a wonderfully soft illumination, I am indebted to my friend, Chester Price, of Bronxville, N.Y.

§ 8. *Tying-silk.*

Strength is the main consideration in salmon-fly tying ; the silk is so rarely exposed that almost any colour will serve. For tying the smaller sizes of salmon-flies and for seatrout-flies Pearsall's Gossamer silks are unapproachable in strength and, where colour is of importance, in that quality also. But a greater margin of strength is required in the silk employed to whip a gut-loop to a tapered-shank hook. For this purpose I recommend one of Pearsall's Elephant silks.

Plate 55



BADEN-POWELL'S PRISMATIC FLY
SILVER GREY : AARO SPINNER

LION : 'NORSK' LURE

'FOUR-IN-HAND' TAY FLY
AKROYD : DEE FLY

§ 9. *Waxes and waxing silk.*

All tying-silks, if they are to give good service, must be properly waxed; this will help the turns to grip very firmly. Cobbler's wax is undoubtedly the strongest, but it is rather intractable, especially in cold weather. Harness-maker's wax is made in two colours and is readily obtainable. There are also other kinds of wax, mentioned in the *Trout-Fishing* volume of this Library, page 195; but for the heavy silks used in tying salmon-flies cobbler's and harness-maker's waxes are undoubtedly the most satisfactory (see p. 369).

There are several ways of waxing silk. A small piece of wax is pressed flat on the tip of the forefinger of the right hand, one end of the silk is held by the left hand and the silk is drawn through the forefinger and thumb holding the wax, until a trace of the wax has adhered to the silk. Another way is to fasten the silk to some immovable object and, holding the silk taut, to apply the wax by rubbing it up and down the silk. The third and best method is to fasten a hook in the vice, to double the silk round the shank and to twist the silk, so that the wax can be rubbed on the double thread without fear of breaking it. When enough wax has stuck to the silk, the twist should be removed by taking hold of the loop and drawing the silk away, so that the shank divides the twisted strands and straightens the silk. Clean your fingers with turpentine.

§ 10. *Whipping a gut-loop to a blind hook.*

Take a well-waxed length of stout tying-silk and a piece of twisted gut or violin E string and double the latter; fasten the silk firmly to the taper of the shank in the manner shown in figure 96; and, laying the loop alongside and under the shank, so that the eye projects beyond the end of the wire, whip it down very tightly and evenly, every turn being hard up against the preceding one. As soon as half the whipping has been completed and the waste end has been twitched off, the tying-silk should be taken in open turns back to the head and slipped between the tip of the shank and the loop, where it will remain until it is needed again. Then taper the loose ends of the gut by scraping them down with a sharp knife. When this has been completed, the tying-silk should

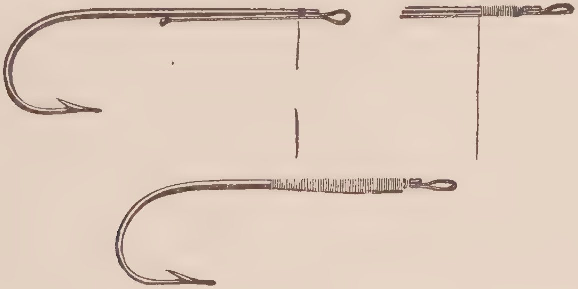


Fig. 95.

METHOD OF WHIPPING GUT-LOOP TO A BLIND HOOK.

See that the legs of the loop lie under the shank and are flattened at the end, so that the binding of silk tapers away smoothly.

be brought back to the point where the whipping left off and carried down, until all the gut has been covered. The points at which the whipping should start and finish are better understood by looking at the figures overleaf than by any vague descriptions.

When there is a tinsel-body to go over the whipping, every effort ought to be made to construct an even and smooth whipping, so that the tinsel shall lie snugly upon it. Polish and harden the turns of silk with a flat piece of metal and it is ready to receive a coat of varnish, preferably that made of celluloid. The extreme tip of the shank is left naked on purpose, so that there may be plenty of room for the head.

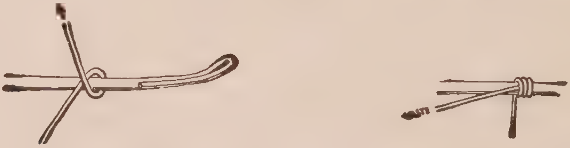


Fig. 98.
Fastening in silk at shoulder of eyed hook.

First three coils.

Eyed hooks, that is, hooks with eyes made by bending the wire of the shank back until a loop is formed at the head, are very popular to-day; they last as long, longer in fact, than the materials of which the fly is constructed and a fly dressed on them can be used at a moment's notice; but a loop of silkworm gut should always be soaked a little, before the angler starts fishing with it. This disadvantage of a gut-loop can be overcome, if a length of violin E string be used instead of twisted gut (see Chaytor: *Letters to a Salmon-Fisher's Sons*, p. 167). I have also employed tennis-racquet gut of the thickness used for the trebling and have found it quite satisfactory; and although fine, it is exceedingly strong and pliable, so that it becomes soft directly it is put in the water.

It is far better to whip a gut-loop on a hook without the aid of a vice, because the complete control over the hook, given by holding it with the fingers, assists one in judging pretty well how much strain can safely be put on the tying-silk. It has been my experience that the silk breaks far more often, if the hook is held rigidly in the jaws of a vice.

CHAPTER TWENTY-SIX

SOME WAYS OF TYING SALMON-FLIES

IN writing this chapter I am assuming the reader is new to the art of fly-tying, both for salmon and for trout; and, therefore, the instructions in it will be rather wearisome to the fisherman who knows a little of either of these arts. The simplest pattern with which to initiate the novice is undoubtedly a simple strip-wing pattern, such as the March Brown or the well-known Blue Charm. The former I propose to describe here and to postpone a discussion of the Blue Charm, until the time comes to mention low-water dressings and modern technique.

§ 1. *Dressing a simple strip-wing pattern.*

March Brown: materials required.

Hook: 5 to 8 or even 9.
Tag: narrow silver tinsel or silver thread.
Tail: fibres of mallard or of a similar feather, or a topping.
Body: dubbing of hare's flax (from the back), or a mixture of the fur from the ear and the face of a hare.
Ribbing: broad silver tinsel, flat.
Throat: partridge back-hackle; in the larger sizes that from the rump should be used.
Wings: hen-pheasant tail, two strips set horizontally.

It is a great help to have a white cloth on the table; it acts as a background to the fly during the process of dressing and prevents small dark feathers from being lost. Select and prepare all materials before starting. Be sure that your hands are absolutely clean and free from any trace of wax. Keep firmly fixed in your mind that only the *minimum* amount of first-class material produces the best result, that two tight turns of fine silk grip feathers better than one of thick silk and that one firm turn is better than ten taken at weak tension. *Study proportion.*

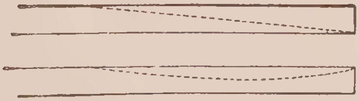


Fig. 97

Two methods of cutting tinsel (I prefer the lower), so that it may fit neatly into the body and be bent towards the head without causing an unsightly bulge.

You will need about two inches of each of the tinsels, a small pinch of the fur, well teased out, and either one of the two centre tail-feathers or two feathers from opposite sides of the centre, that the wings taken from them may correspond when they are set on opposite sides of the shank. After cutting the lengths of tinsel from the reel or card, draw them through a piece of chamois-leather to polish them ; but one end of the length should be held by the strong pliers, otherwise moisture from the fingers will be left on the tinsel and the polishing will be in vain (see p. 271). While you have a firm grip on the tinsel that is to form the ribbing of the body, cut one end of it as shown in figure 97 ; this encourages the tinsel to sit firmly, when it is tied in and makes it far easier to turn over in the direction of the head. Strip the fluffy fibres from the base of the hackle and also any that you do not think will be needed. Stroke back the fibres from the tip and double the hackle. If the hackle is stiff, as is one taken from a cock, you will probably decide to employ the softer fibres, nearer the quill-end, and therefore tie in the feather by the stem. But if the pattern demands a throat with some 'kick' in it, the cock's hackle should be fastened by the tip. But always use a little less hackle than you think rather scanty. Sometimes, however, it is desirable to use only the coarser and softer fibres in the formation of the throat ; the hackle will, under those circumstances, be tied in by the stem.

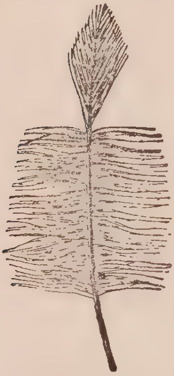


Fig. 98.
AN UNDOUBLED SOFT HACKLE PREPARED FOR TYING IN AT THE TIP.

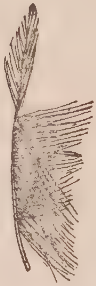


Fig. 98a.
A DOUBLED HACKLE.

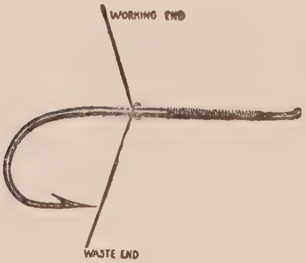


Fig. 99.
First stage of tying in silk at butt, leaving a gap between it and foundation, into which waste ends can be tucked.

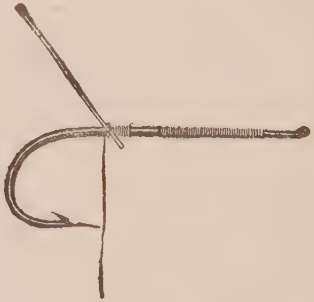


Fig. 100.
TYING IN TINSEL.

The whipping that holds the gut-loop to the tapered-shank or blind hook acts as a foundation for the materials about to be tied to the hook ; in the eyed hook a special foundation must, first of all, be constructed, by whipping the shank from the shoulder to a point, one-eighth of an inch to the right (above or to the headside) of the place where the butt will rest, if there happens to be one in that pattern (see fig. 289). If there is no butt included in the dressing, the position it would occupy should be judged and a small space left between the end of the foundation of stout silk and the beginning of the fine tying-silk ; this allows the waste ends of tinsel, floss-silk, etc., plenty of room to bed down into the general line of the taper, so that the winding of a metal body shall proceed evenly and without the turns riding or gaping.

Some patterns have dubbed or silk bodies instead of metal bodies; but I am sure Dr Pryce-Tannatt is right in saying that every foundation should be built up, as though it were eventually to be covered with tinsel. Neatness in working is half the battle in salmon-fly dressing and the tightness of the silken coils is most of the other half! One turn of fine waxed silk is worth two or three of thick ; one turn taken at good tension is worth ten turns wound moderately tight, every one of which is put on to make up for the inefficiency of the preceding one. And always employ the minimum amount of material necessary to obtain the effect you want.

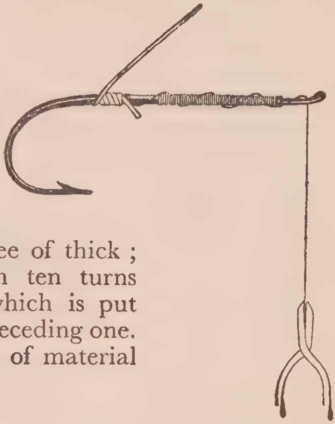


Fig. 101

BRINGING TINSEL OF TAG FORWARD.

§ 2. *A method of tying with a vice.*

First place a small fold of rough-faced leather or of canvas within the jaws of the vice, so that the hook may be more firmly gripped and the enamel on the bend be left intact. See the point of the hook is completely blinded by the jaws and will not catch in the silk, when turns of it are taken. Cut off a length of well-waxed tying-silk, fasten it to the point where the bend of the hook begins, and take two close turns to the left and over the end of the tinsel or silver thread that is to form the tag (fig. 100). Hang the hackle-pliers on the silk and take the tag-material to the left, until it crosses the bend of the hook where the tag is to start. At that point, hold the tinsel taut and begin winding the rest over itself very tightly, taking great care the turns lie edge to edge (fig. 101). As soon as you reach the point where the silk was tied in, take it up again and fasten the tinsel down with two or three firm and close turns to the left (fig. 102). The tinsel should then be broken off by bending it back and forwards ; the point at which it is fastened off should be under the shank. Wherever it is possible, finish off material on the under-side of the hook ; it makes a much neater job of the fly. Hang the pliers on the silk.

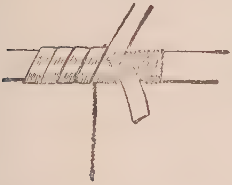


Fig. 102.

ENLARGED VIEW OF TAG.

With first turn of tying-silk in position.

Take up the strands for the tail, hold them vertically over the hook in the right position for tying in, place the silk over them at that point, grip them and the silk between the finger and thumb of the left hand and draw the silk taut, so that the fibres are compressed in the same plane and lie one on top of another (see fig. 103). Tying in a small topping as a tail is described below, on page 285.

Hold the silk in the hand, tie in the ribbing tinsel with two turns to the left and over the base of the tail, taking care the slanting cut shall point upwards (fig. 104). When the silk is being wound to the left, the tail-fibres should be held between the forefinger and thumb of the left hand to prevent them splitting. With a pair of curved scissors cut off in a taper the waste ends of the tail.

Spin on the tying-silk a pinch of dubbing, twisting the silk from east through south to west ; this ensures the spin remaining during the process of winding the silk round the shank (fig. 105). Wind the dubbing evenly up the body as far as the shoulder and, if you wish, make a half-hitch (fig. 105a). Knots of any kind should, in theory, be avoided throughout every stage of the tying, as coils of well-waxed silk may be relied upon to hold together under the weight of a pair of hackle-pliers, while the fly-dresser is getting into position the materials for the next process (see fig. 90).

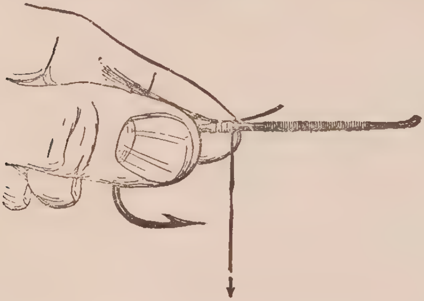


Fig. 103.
THE TAIL PLACED IN POSITION.

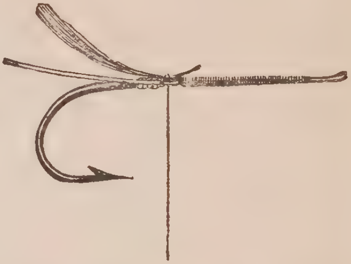


Fig. 104.
RIBBING-TINSEL OF MARCH BROWN TIED IN.

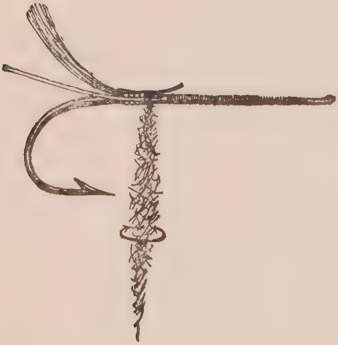


Fig. 105.
SPINNING ON DUBBING OF MARCH BROWN.

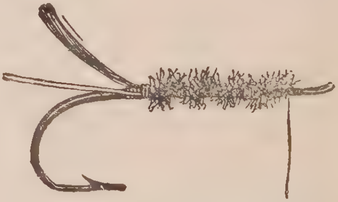


Fig. 105a.
DUBBING WOUND.

Fasten to the tinsel the pliers that have the strongest grip and carry it in open and regular turns to the shoulder (fig. 106) ; take two turns of silk over the tinsel and break it off by bending it backwards and forwards, Breaking the tinsel off is better than cutting it, because there is an upturned end where the break has occurred ; this will ensure the silk holding the tinsel firmly. At this point I always recommend that a half-hitch be made, so that the celluloid varnish, in which it should be soaked, shall have something to grip.

Take up the hackle and stroke the fibres back until they are at right angles to the centre-quill (fig. 98) and double it. Lay the stem or the point of the hackle, whichever is the way it has been decided to fasten it in, upon the hook, close up to the shoulder and with the better side outermost (fig. 107). The main part of the feather ought to be to the left of the point at which the silk is holding the stem down ; this means that the better side of the hackle will show when the winding has been

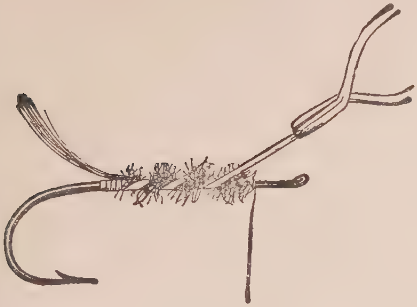


Fig. 106.

Note direction of strain in winding ribbing-tinsel and evenness of spiral.

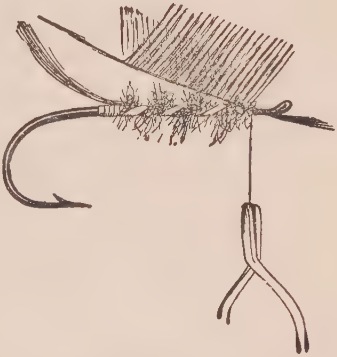


Fig. 107

DOUBLED HACKLE TIED IN BY TIP.

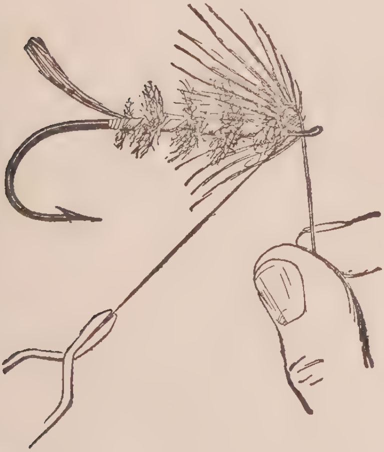


Fig. 108.

WINDING THROAT.

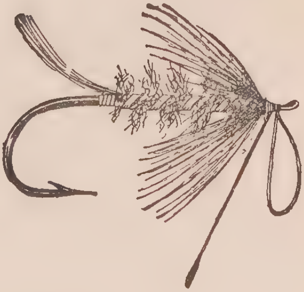


Fig. 109.

FASTENING-OFF AFTER FOUNDATION HAS BEEN FORMED.

completed. Some fly-dressers tie in the hackle under the shank, so that the stem is completely hidden from view and the foundation for the wings can be kept flat. If there is a long stem to the hackle, dispense with pliers and use your finger and thumb. You can wind the feather more tightly and keep the quill always next to the shank.

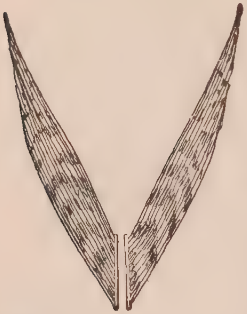
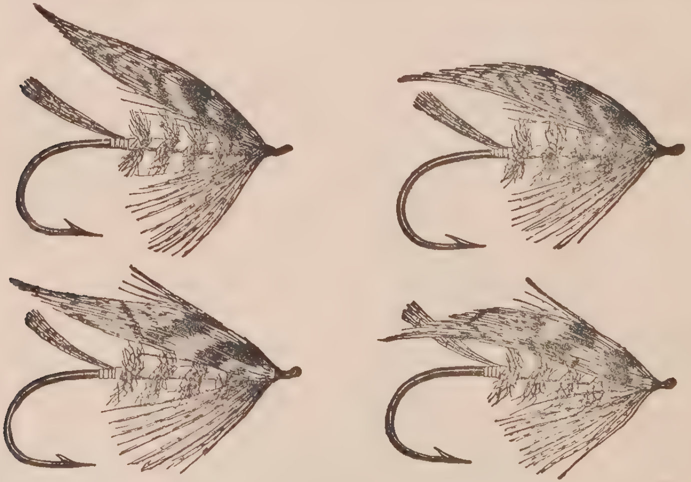


Fig. 110.

STRIPS OF HEN-PHEASANT TAIL-FEATHER PREPARED.

The throat-hackle will lie more easily and securely, if the turns of it are taken hard against one another, in such a way that they occupy only a narrow band of shank. After tying in the hackle, bring the silk to the right and wind the feather very tightly in the same direction (see fig. 108); finish the winding of the hackle under the shank, secure the tip with two turns of silk and cut off the waste (fig. 109). When you are winding the hackle coax the fibres, until they lie slanting in the direction of the bend; this helps the finished fly to have what is called a 'good entry.' Apply celluloid varnish to the seating of the hackle, until it is thoroughly soaked.

With a sharp knife split the quill of the hen-pheasant centre tail-feather along the line of its natural cleavage and cut two pieces, equally wide in the web, from each half, leaving the quill still uniting the base of the fibres (see fig. 110). These strips can then be tied to the hook in four different ways, every one producing a different result in the winging.



Figs. 111 to 114.

FOUR METHODS OF WINGING A MARCH BROWN.

See accompanying text for the ways of producing these different effects.

Let the strip cut from the right-hand side of the feather, when the stem of the feather is held in the hand and the tip is furthest away from the body, be called a right strip and one from the opposite side of the quill a left. Then the four combinations are as follows. There are the upright-pointing wings, shown in figures 111 and 112. The former is made by tying in, simultaneously and vertically over the shank, a left strip as a right wing (that is nearest the fly-dresser) and a right strip as a left wing (fig. 111). Reverse the strips and the wings will, as shown in figure 112, have a ragged upper edge to the tip, but will enter the water and swim rather better than figure 111. In figures 113 and 114 the strips must be tied in separately and with the silk reversed for the tying of the second or left wing. When these wings are properly adjusted, they will embrace the shank in the manner of Spey-flies. The two methods differ one from another only in the selection of the wings; this depends upon whether the strips are tied in on the side of the hook opposite to that which they occupied when they were still part of the whole feather, or on the corresponding side. Throughout this book the right side of a feather is understood to denote that side of the centre quill which is to the right of the dresser, when he holds the feather by the tip and with the best side uppermost.

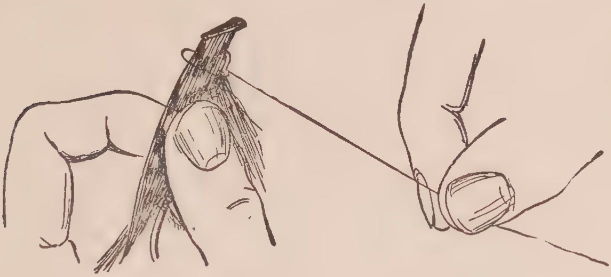


Fig. 115.

Shows, with fingers withdrawn, the correct position of strips to achieve the winging shown in figure.

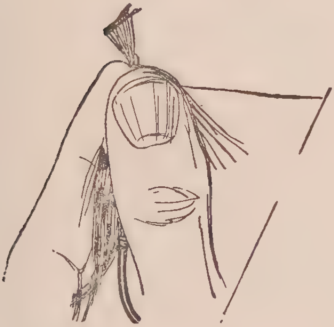


Fig. 116.

Shows how thumb and forefinger hold the strips, so that they are squeezed correctly by the silk.

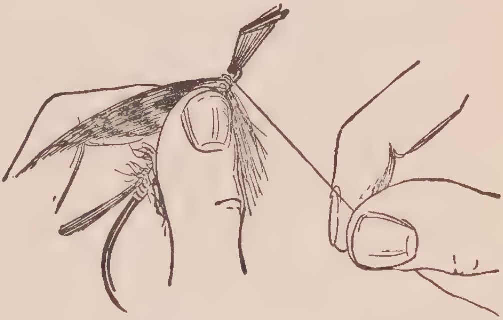
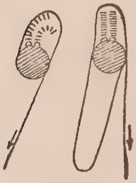


Fig. 117.

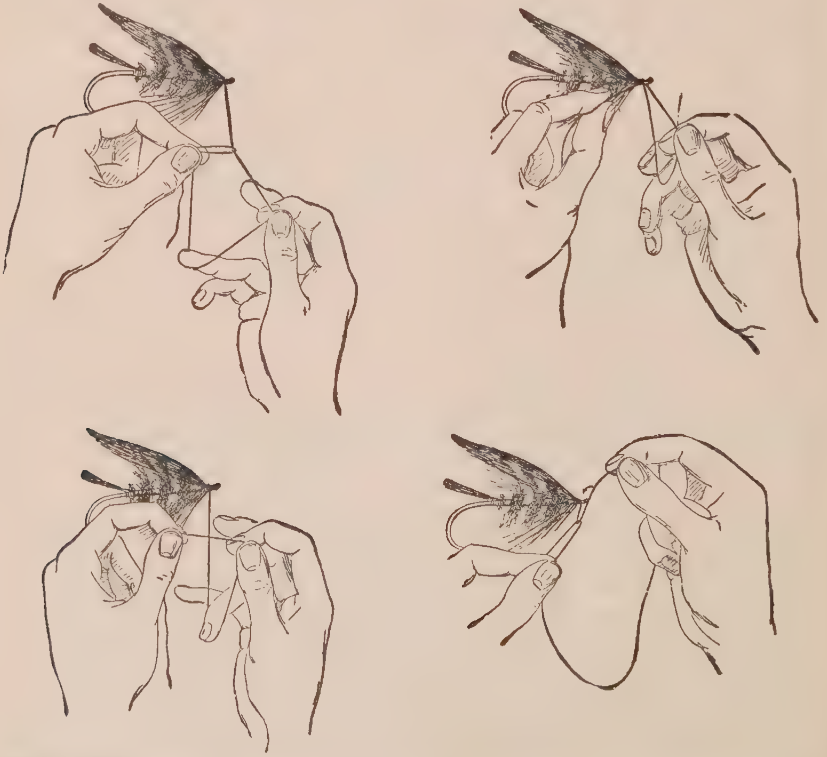
THE WING TIED.

Actually the outer edge of the strips should spring from a point a little more to the left.

Let us, first of all, tie in a pair of wings vertically. Before attempting to fasten any wings down to the shank, you should construct a foundation of silk upon which the wings may rest; if this is left out, the wings are very apt to stick up in the air, because the silk will pull down part of the fibres into a hollow between turns of silk and the rest will be raised against the fulcrum of the hackle-seating. Wind the silk in even turns to the head and back again as far as the point where the hackle has been fastened off. Take up the pair of strips between the left forefinger and thumb ; adjust them until the outer parts of the web cover one another accurately ; place them vertically over the shank in what is judged to be the correct position ; change hands and pass the tying-silk over the strips at the point where the actual fastening is to be done (fig. 115) ; grip the strips and the silk firmly and draw the silk tight and with it the fibres, which are thereby compressed (see fig. 116). Still holding the strips in position, bring the silk round again over them and to the right of and hard up against the preceding coil. Then lift up the ends of the fibres ; take a turn under them ; remove the waste with a slanting cut ; whip to the eye and back again ; and finish off with the whip-finish (figs. 120 to 123). Apply varnish and arrange the wings. It is better to take the silk under the waste, as it will grip the foundation firmly and hold the two important turns in place ; whereas there is always a chance of turns put over the roots slipping forward and letting the first turns go slack.



Figs. 118 and 119.
(See opposite page.)



Figs. 120 to 123.

The usual method of fastening-off the silk at the head of the fly, namely, the whip-finish, Among the notes made by A. H. Gribble on Kelson's system of fly-tying with a view to the construction of a book on the subject, which subsequently was published as *The Salmon Fly*, there is one on a new method of drawing down the fibres of the wing without disarranging them. The method is best seen by referring to figures 118 and 119. I imagine it would be an advantage to work here with unwaxed silk and to varnish it at the point of the tie and apply liquid wax to the silk for the subsequent turns.

Whether the wings have been chosen from corresponding or from opposite wings, so will the final result be figure 112 or figure 111. It remains to describe the other method of tying strip wings, namely, the horizontal.

Take up the right-hand strip that is to form the right wing and place it along the side of the shank ; adjust it, so that the future wing shall be of the correct length ; and carry the silk over the fibres at the point where they are to be fastened down. Keep the strip in position by gripping it and the shank between the finger and thumb of the left hand, pull the silk taut and hold it, while you examine the wing. If the upper edge of the strip has trespassed beyond an imaginary line drawn down the middle of the shank, from head to bend, the fibres ought to be coaxed back by pulling the adhering quill gently with the right hand ; but at the same time the silk should be kept very taut between the tip of the left third finger and the nail of the fourth ; and the fibres to the left of the turn of silk should be held in their proper position, while the adjustments are being carried out. When the wing has been adjusted with regard to position and length, two turns of silk are taken to the right and one turn under the ends of the fibres and the silk is ready to be reversed.

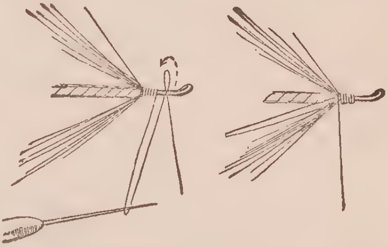


Fig. 124.

REVERSING SILK.

When the silk has been taken three to four turns over the loop, the latter can be cut off and the head varnished, preparatory to putting on the second or distant wing.

When the fly is being dressed on a blind hook, the process of reversing silk is very simple ; the silk is taken up to the eye, passed between the eye and the shank and returned in the opposite direction. But it is rather more complicated when an eyed hook is being used. This is a method of doing it.

Take a loop of the tying-silk round a needle (fig. 124) ; holding the needle firmly, start winding in the opposite direction and very tightly over the preceding coils ; when the silk has reached a position one turn before the roots of the right wing, hang the pliers on it, cut off the loop close and soak the head in celluloid varnish ; the fly is now ready to receive its second wing.

The left strip is attached in the same manner as the right, except that the silk is now reversed. The waste end is cut away and the head is formed in the usual way. The completed fly ought now to present the appearance of that in figure 114 or, if the strips have been put on opposite sides, of that in figure 113.

§ 3. *Tying a fly without a vice.*

It is hardly necessary to go a second time through the whole process of tying a fly, in order to describe the functions of the fingers in holding the hook and in keeping taut the silk, while the feathers are being put into their proper positions. Here are a few notes on it.

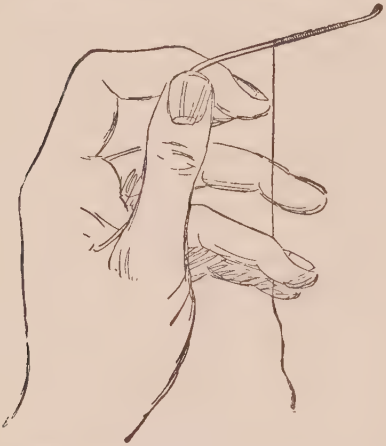


Fig. 125.

This shows way, with the left hand, of gripping hook and of holding the tying-silk firmly, while you are making adjustments of material with the right hand.

The hook is held by gripping the bend between the thumb and forefinger of the left hand ; the remaining three fingers are free, but the tip of the third and the nail of the fourth act as a vice in which the silk can be gripped, while the right hand makes adjustments or picks up materials. Figure 125 illustrates the respective positions of the fingers, which will become quite as simple with practice as, at first, they seem awkward. The second finger should be employed, from time to time, to help out the work of the third, especially when the silk has been hitched under strain between the fingers, while the wings are being placed on the foundation. I have also used the second finger as an *interim* means of holding the silk, by placing it firmly against the side of the shank at the point where the latest turn has been made ; thus the silk is prevented from uncoiling, while I am getting a grip on it with the third and fourth finger.

§ 4. *Dressing a Dee strip-wing pattern.*

Akroyd : materials required.

Hook : from 1/0 upwards.
Tag : silver thread or narrow tinsel.
Tail : topping and Indian crow (vermilion).
Body : orange mohair, ribbed with broad flat silver and fine thread tinsel and a lemon hackle as far as the middle ; followed by black floss ribbed with medium oval silver tinsel and a blue-black heron hackle.
Throat : remainder of heron hackle, followed by a widgeon or a teal back-feather.
Wings : strips of cinnamon turkey-tail tied in flat ; these should to give of their best be chosen from a feather that has pale tips. There is also a variant with white wings.
Cheeks : in the larger sizes, when they are to be used in heavy and thick water, cheeks of jungle-cock neck-feather should be tied in to point diagonally downwards and backward from the seating of the hackle.

Fasten the tying-silk just in front of the butt, tie in the tinsel or thread (I find twist very effective in some sizes) and form the tag in the way described before (p. 277). Measure the topping by placing it in position, hold the free end of the fibres between the left thumb and forefinger and take one firm turn over the topping; then place the Indian-crow feather in position and fasten it down with two close turns of silk. Inspect the work and see that the tail is sitting plumb and on top of the shank, but do not attempt to alter the length of the tail by drawing it through the retaining coils of silk. A tail that is too long can be trimmed; one that is too short should be released and tied in again. Whip down the tinsel and thread by the tapered end and hang the hackle-pliers on the silk to keep all secure, while the doubled hackle is being adjusted.

Doubling a hackle is a far easier trick than many think. Clip a pair of hackle-pliers to the stem of the feather; lay the feather across the palm of the right hand, the best side uppermost; hold the extreme tip of the feather with the left thumb and forefinger and bend the hackle round the right index-finger, until the fibres stick up from the central quill. Squeeze the fibres between the right forefinger and thumb, rolling them up and down the stem, until they are set in position. Move the feather along a little, so that the required length of it may be doubled in the same manner. It is essential that all unnecessary fibres shall, first of all, be stripped and that the stem shall be felt all the time the process of setting the fibres is going on (see figs. 126 to 128).

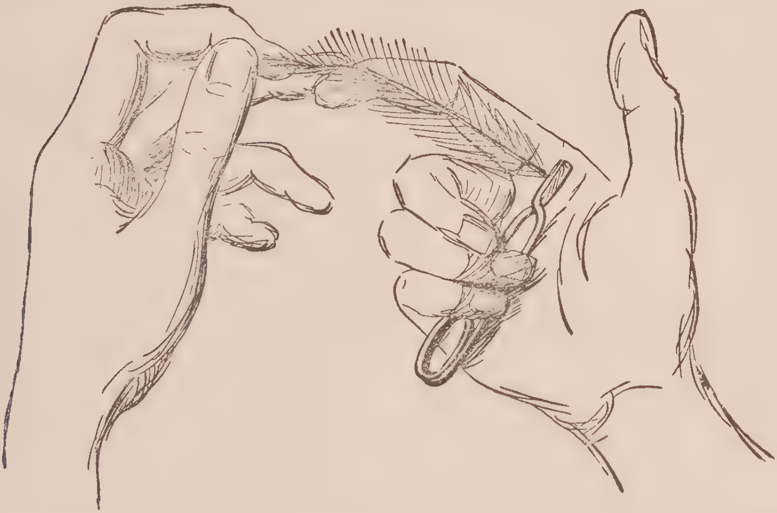


Fig. 126.

The first position in doubling a hackle. It is essential that the feather should, throughout the process, be kept taut.

Rewax the silk. If this is done with solid wax, the silk is apt to break. The better plan is to apply liquid wax with a brush or a stiffish hackle stuck in the cork of the bottle containing the wax (see p. 370). This is another of Dr Pryce-Tannatt's ideas. Orange mohair should then be spun on the silk in the direction of the hands of a watch that has been laid on the table in front of the fly-dresser, that is from east to west through south (fig. 105). Lay the dubbing on to a point just short of the middle of the body or thereabouts; with practice the exact point will easily be judged. Although the care with which the proportions of a fly is constructed, along with the cost of the rarer feathers and all the accuracies in copying the standard pattern, are lost on the salmon, it is just in the lack of observance of these matters that the hand of the apprentice stands revealed. One way of tying a salmon-fly, provided the feathers stick to the shank and play well in the water, is as good as another; but thereby what is, after all, an art would lose much of its charm. I am sure the amateur would cease to dress his own flies with the old enthusiasm, if he were expected to forsake his art entirely and to look at fly-tying merely from the practical standpoint (see p. 319 *et seq.*). Watch very closely, therefore, the amount of dubbing applied to the body.

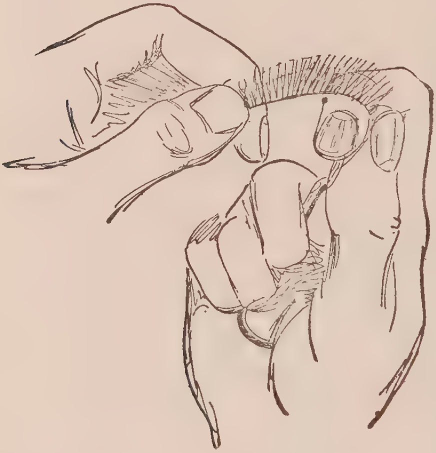


Fig. 127.

The second position in which hackle-fibres are compressed. Be sure to feel the central stem all the time.

Wind the ribbing in open turns to the same point. With the silver thread fasten in the hackle by the tip very tightly. Wind the thread along the hinder edge of the flat tinsel; follow with the hackle, keeping it close up behind the thread; and fasten these down successively and hang on the pliers.

I have discarded the old method of stripping from the heron-hackle one complete side of fibres, because some excellent fibres were thereby lost and the weak lower fibres as well as a thick quill were retained. It is far better to keep the strong dark fibres near the top, double the feather and wind it with the quill next the body, so that every fibre stands out from the body. At this stage (figs. 140 and 141), the tinsel is wound away over the shank to the right. The heron-hackle, tied in by the stem, should be taken close behind the second section of ribbing-tinsel and be tied in between the first and second turns of the flat tinsel and should follow closely behind it to the shoulder. Only a narrow band of fibres need be employed to produce the right effect—*mobility*.

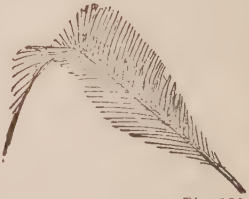


Fig. 128.

Gives an idea of the shape of a feather when bent over the finger.

The next step, before winding the hackle, is to fasten in a length of black floss-silk half-way up the section and a two- or three-inch length, according to the size of the pattern, of medium oval silver tinsel. Form the silk body, take the tinsel up the body and wind the hackle close behind it. If a long feather has been chosen, there is often a portion of it remaining after the shoulder has been reached. The silk should be passed once over to prevent the spiral turns loosening. The remainder of the hackle may, if desired, be wound at the shoulder and whipped down with two turns of silk to the right. Be sparing with amount of heron-hackle at the shoulder.

Tie in by the tip the throat-hackle of teal, the fibres of which have already been doubled, with the stem pointing towards the bend of the hook. Wind the throat (a turn and a half or two turns only), take two coils of silk over the stem, spin the fibres (see p. 318) and arrange them so that they fall back under the hook, take two turns of silk to right, cut off hackle stem, and whip up to the eye and back again to the hackle-roots, in order to form a foundation for the wings. Hang the weighted hackle-pliers on the silk (see fig. 90) and give the head a thorough soaking in celluloid varnish.

Wings made of strips of web taken from turkey tail-feathers require special treatment in tying, because the fibres are very prone to split, directly they are compressed by the silk. The following method, however, enables the fly-dresser to put on wings of this material with some degree of certainty, so that they will not disintegrate and spoil the look of the fly.

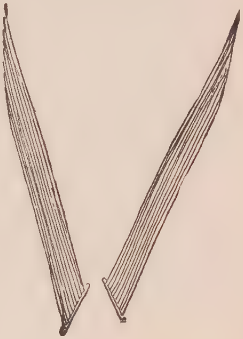


Fig. 129

A PAIR OF STRIPS OF TURKEY-TAIL FEATHER

Take a sharp knife and split the centre quill of a tail-feather down the middle and cut from each portion the necessary width of web. Another and better way is to insert the blade of a sharp knife between two fibres at the top edge of the strip and, with a downward cut, slice off the right width of quill with the fibres still adhering. This method makes it quite easy to take from a new pinion exactly the piece of web needed without disfiguring unduly the rest of the feather. Place the right strip on the right of the table and the left on the left ; this is more important than might, at first, be thought. Lay the right strip across the foundation in the position it is to occupy when fastened down and pass the silk over it twice, but without drawing it taut. Check the length of the strip again,

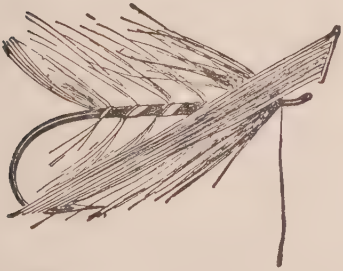


Fig. 130.

Measuring wing-length preparatory to tying it in. The fly is one of conventional Dee-type, Akroyd being too full of detail for line-drawing.

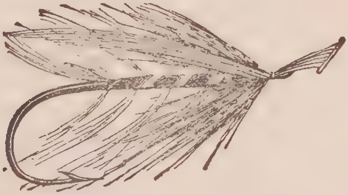


Fig. 131.

FIRST STRIP TIED IN.

making sure the tip of the feather is just level with the furthest part of the bend of the hook ; place the left forefinger under the shank and the thumb above it to include in its grip the strip and the silk ; by the same means keep the strip horizontal and the edge that is nearest to you as far over the shank as its middle ; and draw the silk taut, so that the fibres are compressed horizontally and occupy only a small part of the area of the shank (fig. 132). If any of the fibres are lying on the far side of the middle line I have just mentioned, they should be brought back. Hold the silk taut between the tip of the third finger and the nail of the little finger of the left hand ; hold the serviceable portion of the wings with the left forefinger and thumb ; and draw the fibres towards you by pulling with the right hand upon the far end of the quill. Thanks to this process the fibres nearest to the dresser will remain in position ; while the distant fibres will be drawn gently over the middle line, that is, the border between the two strips (fig. 132). Hold the silk taut and inspect the work and, if all is to your satisfaction, take three or four firm turns to the right, reverse the silk (see fig. 124) and then wind back to within one turn of the seating of the right wing ; if you wind beyond that the set of the fibres will be disturbed.

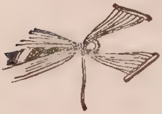


Fig. 132.

Two strips tied in, showing relative positions

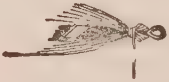


Fig. 133.

Finishing off the head of an Akroyd.

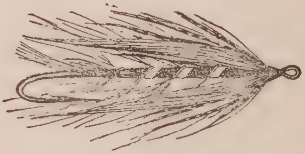


Fig. 134.

View of finished fly from above.

The left wing is attached in the same way ; but great care should be taken to see that its inner edge shall lie beside the inner edge of the right strip, in the way depicted in figure 132. Soak with celluloid varnish. Cut off slantwise the waste-ends, whip to the eye and back again to the head and make the whip-finish (figs. 120 to 123). Stop winding the silk, however, before you reach the turn that compresses the wings. If the silk in finishing off is allowed to go to the left of this turn, the wings are thrown out of the setting you have taken so much trouble to achieve.

A pair of jungle-cock neck-feathers are included in some of the examples of this fly. They should be placed in position first in order to discover the point at which they ought to be tied in. Strip the waste fibres away and place the feather, so that it flanks the throat. Secure it by a firm figure-of-eight turn over the narrow part of the enamel. Then proceed with the formation of the head.

This is a hard-wearing and killing fly, especially if pains have been taken to dress it neatly and sparingly, so that the body has the appearance of slimness, lightly clad with luminous filmy robes. I would cheerfully put my trust in and even my money on a well-dubbed Akroyd for any river, when the water was at a suitable height.

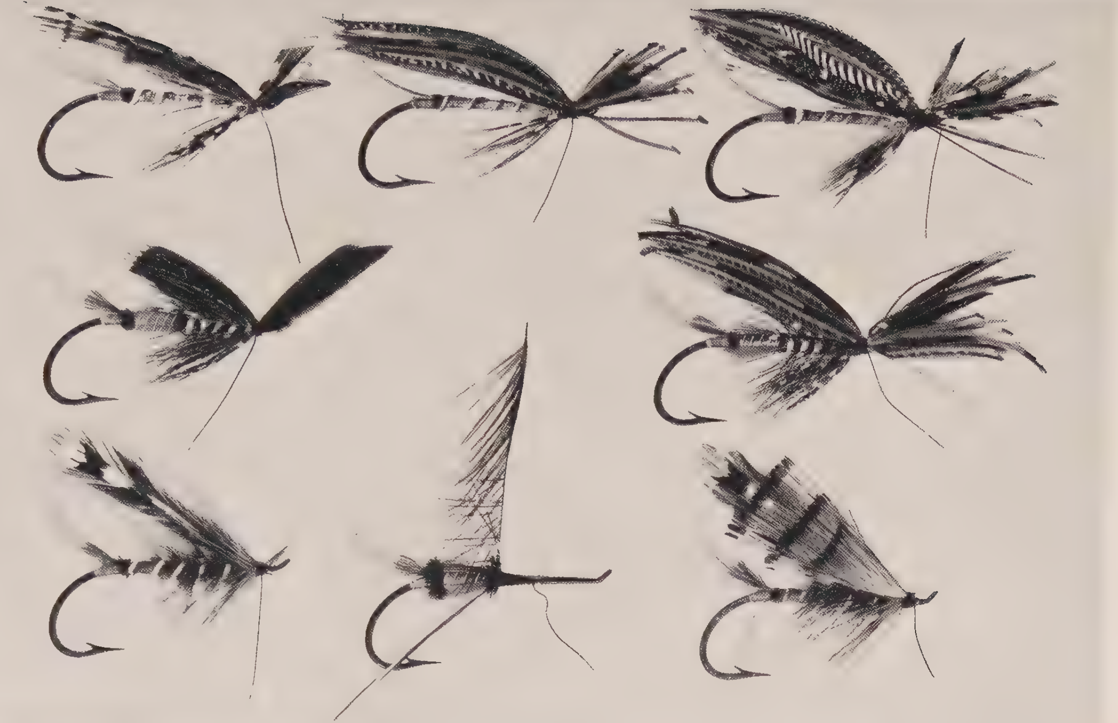


Plate 56

STAGES IN TYING STANDARD SALMON-FLIES

SILVER DOCTOR.
(Top row.)

JOCK SCOTT.
(Middle row & middle fly of bottom row.)

DURHAM RANGER.
(Right & left of bottom row.)

§ 5. *Dressing a whole-feather wing pattern.*

Durham Ranger : materials required.

Hook : from 2 upwards.
Tag : silver tinsel.
Tail : topping and golden-pheasant breast-feather, better side downwards or Indian-crow.
Butt : black herl, black chenille, or black mohair.
Body : equal sections of lemon, floss-silk, of orange, fiery brown and black seal's fur.
Ribbing : flat silver tinsel followed by silver twist or thread.
Hackle : pale yellow.
Throat : a pale blue hackle.
Wings : a pair of jungle-cock neck-feathers, tied in back to back and on edge ; two pair of tippets partly enclosing them.
Sides : jungle cock.
Cheeks : blue chatterer or kingfisher (often omitted) : topping over.
Horns : macaw-tail fibres.

Sir Herbert Maxwell, on page 167 of the large paper edition of *Salmon and Seatrout*, gives a slightly different recipe for this fly. The body is there stated to consist of one-fifth orange floss followed by orange, claret and black pig's wool, picked out and ribbed with silver tinsel. The ribbing-hackle is given as a *coch-y-bonddu* hackle, dyed orange. *Coch-y-bonddu* is a poultry-hackle in which the centre and the edges of the fibres are black, while the intervening area is chestnut-red (see *Trout Fishing from All Angles*, p. 283 and the plate opposite). He omits the cheeks of jungle cock. In the column for remarks which is provided opposite the patterns in Sir Herbert's book, this and the other 'Ranger' flies are mentioned as having first been dressed by John Forrest of Kelso to the order, according to Henderson (p. 176), of Scruton in 1840.

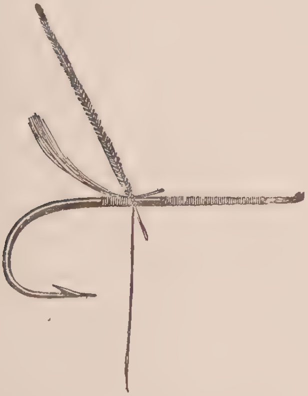


Fig 135.
HERL PLACED FOR TYING IN

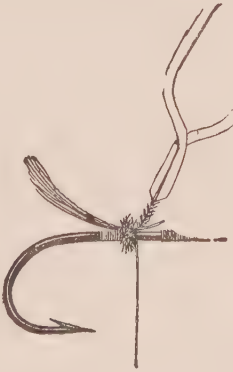


Fig. 136.
BUTT FINISHED.

The tying of the fly follows the usual routine as far as the butt of the ostrich-herl or black chenille. Unless the herl is tied down very securely, there is always a chance that it will spread along the shank, so that the coils drift apart from one another. Strip from the thick end of the herl the short fibres of poor quality by drawing that part of it between the thumbnail and tip of the forefinger of the right hand ; and place that end of it across the shank diagonally, as shown in figure 135. Bind the herl down ; fasten to the weaker end a light pair of pliers and wind the herl tightly and very closely to the right ; see that all the turns are hard up against one another and press them up with the thumb-nail ; take two turns of silk over the herl to the left (fig. 136). A stronger method, though hardly as neat, is that which was used by William McNicol. The silk is to the left of the herl during the process of winding and is afterwards brought through the flue and a turn taken hard up against it. Every care should be taken that the flue points towards the bend. The butt may with advantage be set in order after its formation by the use of a delicate brush made from the centre of a large feather on which a few fibres, cut very short, are still adhering (see fig. 94).

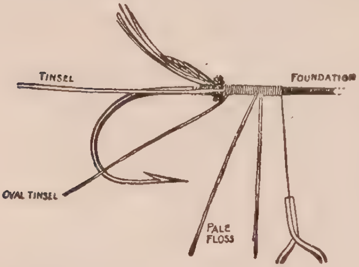


Fig. 137.

Shows tinsels and the floss for the first section tied in.

The ribbing-tinsel should now be fastened in along the side of the shank, so that it shall appear to have its origin from under the hook ; the guarding-twist or thread should be fastened hard up against the upper edge of the tinsel, which will bring it naturally touching the hinder edge of the tinsel, when they have both been turned over and are being wound up the body. The ribbing-hackle can be tied in here, or a little higher up the body, but it must occupy such a position that it will naturally fall into place behind the tinsel. At whatever point the hackle is tied in, every care should be taken that the delicate quill of the hackle is protected by the twist.

I am obliged to Dr Pryce-Tannatt for his way of setting in the ribbing-hackle. He cuts away the waste at the tip, strokes back the fibres of the doubled hackle near to that point and binds the feather in very tightly with the second turn of ribbing-thread, taking care the tip is pointing towards the head.

This is a very neat way, which relieves the tyer of the annoying job of keeping apart hackle-fibres and floss-silk ; but if the waste is cut away too close, there is very little to keep the smaller end of the hackle secure.

The floss-silk is tied in near the centre of itself, on the far side of the shank ; it can then be made to cover the points from which the other materials spring (fig. 137). Wind the right-hand half the estimated distance up the body, to which the tying-silk should already have been carried ; wind the left-hand half back to the butt and then forward over the other ; fasten off, cut away the waste and spin in succession, one after another, on the silk the different shades of dubbing ; when the shoulder has been reached hang the pliers on the silk ; wind the broad tinsel tightly and very evenly up to the shoulder and follow it by the twist and by the hackle, which latter should have been prepared by doubling (fig. 126). Fasten in, wind and secure the throat-hackle; take several turns of silk to the right and back again to make the customary foundation and the fly is ready to receive its wings.

Another way of tying in the floss-silk is to take the tying-silk up to the point at which the floss is to finish, to tie the material in there and to wind it down the body to the butt and back again to silk. This is the usual method of covering the whole of a body with floss-silk, unless it is wished to turn out a slimly-built fly.

The feathers that go to make up whole-feather wings need most careful selection, measurement and putting together. Take a pair of large jungle-cock feathers, if possible from opposite sides of the neck; lay them roughly in the position they will occupy on the shank and measure the required length; strip away all the superfluous fibres and bind over the narrow strip of enamel, so that the silk may get a firm grip. Measure the larger pair of tippets, arranging that they shall almost cover the lower white spot on the jungle-cock feathers (see pl. 56); remove the unwanted part of the tippets and make a nick in them. The second pair of tippets are to be treated in a similar manner, but they should come only as far as the lower dark bands of the first pair. The second pair of jungle-cock feathers should reach a point just short of the dark bars at the end of the second pair of tippets.

When all these materials have been collected and prepared, tie in the under pair of jungle-cock feathers upon their edges and exactly along the central line of the shank (pl. 56); the rest of the feathers in their proper order are then coaxed, until they embrace this first pair, but considerable difficulty will be experienced in persuading them all to stand in a vertical plane and yet to pack flat, every one against its neighbour, and form a kind of laminate wing. It helps considerably in keeping these feathers on edge, if the stems are, during the process of tying down, kept from crossing each other. Celluloid varnish, freely applied to the turns which hold the wings down, also goes a long way towards holding them firmly (pl. 1).

Before attempting to put on the wings, the dresser should be most careful to see the foundation is slightly higher than the seating of the throat; otherwise the tippets will stick up into the air, instead of their lower edges lying almost parallel with the shank. Another trick is to tie in the whole feathers of the wing before winding the throat; in plate 56 (vi), the throat has been wound after the pair of jungle-cock feathers. It helps towards the correct set of the wings, if the throat is pressed down out of the way on either side of the hook; this allows the wings to be put into the correct position before drawing the silk tight. When the feathers composing the wings are tied in separately, the successive coils of silk should be taken to the right and the materials should rest side by side, instead of on top of one another. Above all, keep the wings in the same vertical plane in which the bend of the hook lies. This becomes an easier task, if the paired feathers are held firmly between the left finger and thumb and the stems are pressed down by the fingers of the right hand, so that the feathers are held rigidly on edge while the silk is being drawn taut. Dr Pryce-Tannatt recommends that the silk should be reversed before tying the wing-feathers down; possibly this helps to keep them upright. I think an even pull from each side is the simplest method (see figs. 118, 119).

CHAPTER TWENTY-SEVEN

SOME WAYS OF TYING SALMON-FLIES

§ 1. *Dressing a built-wing pattern.*

Jock Scott : materials required (see pl. 1).

Hook : any salmon size.
Tag : silver wire and yellow floss, or only of silver tinsel.
Tail : topping and Indian crow.[1]
Butt : black ostrich herl or black chenille.
Body : in two equal halves, (i) *yellow floss-silk veiled with six orange toucan breast-feathers*[2] *and ribbed with fine oval silver tinsel ; this is followed by a butt of black herl and* (ii) *black floss-silk, ribbed with broader silver tinsel in front of a black hackle (in the larger sizes the hackle is guarded from the flat tinsel by a thin ribbing of silver twist or thread). In smaller sizes of this pattern the second ribbing is of medium oval silver tinsel.*
Wings : a pair of brown-black turkey-tail strips with white tips ; outside these a sheath of mixed wings, married strands of peahen secondary, of dyed swan, yellow, scarlet and blue, of bustard, florican and golden-pheasant tail, two strands of peacock sword-feather tied in to lie along the upper edge ; narrow strips of teal and barred summer duck,[3] *married before being put on ; brown mallard strips as a top to the wings.*
Throat : speckled gallina.
Sides : jungle-cock neck-feathers.
Cheeks : blue chatterer[4] *; a topping over all.*
Horns : macaw tail, blue and yellow.

THE Jock Scott is, for salmon-flies, of considerable antiquity ; it was invented in 1845 during a voyage to Norway by Jock Scott, a fisherman in the service of Lord John Scott (see Maxwell : *Salmon and Seatrout*, p. 122). The true cause of its attractiveness to salmon I believe to be the under-wing and, therefore, take care to choose for that part of the fly a strip from a turkey tail-feather that has a pure-white tip.

a. *A digression concerning Art and Faith.*

Most of the examples of this fly which are to be seen in the shops are dressed with a compound tag consisting of two or three coils of silver thread and of floss-silk. If the fly is to have a workmanlike and artistic appearance, it is most important that the thread and the floss of the tag and also that the tag and the fly, as a whole, should be in correct ratios to one another. I advise the beginner in fly-dressing to follow the Greek method and buy, or get the loan of, some flies dressed by a master of the art, study them intently and allow an impression of their proportions to be formed on his mind, until the instinct is created, whereby he will know exactly the point, at which every part of the fly ought to begin and finish. Such were the patterns dressed by the late E. M. Crosfield, models of slimness, strength and clean design, which engender in the fisherman's mind faith and confidence to carry him half-way to success, before he wets a fly (see pl. 50). Give a man a fly his artistic perception says is well dressed and it is long odds on him succeeding, where another has failed. He believes in his pattern and in the way it has been dubbed ; every cast he makes he performs and fishes out intelligently, because he has constructed for himself a mental picture of the behaviour and aspect of his fly, when the latter is swimming beneath the surface. He patiently fishes out the cast instead of hurrying it in his eagerness to try another ; he makes the most of the water he is fishing at the moment and, in short, he is, at the time, a better fisherman than the other man, because of his faith in the fly. The fisherman who habitually uses flies that strengthen his faith and appeal to his imagination, until he can almost see beneath the surface of the river, is generally a better fisherman than his neighbour. Will he, then, catch more fish? Possibly he will, but I am sure he will make a better use of his opportunities ; and there will be many days on which he alone will be able to discover the opportunities.

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[1] Substitute : red-throated thrush (see p. 258).
[2] Substitute : orange hackle-fibres or small toppings.
[3] Omit summer duck : in large pattern substitute strips from central tail-feathers of Lady Amherst's pheasant.
[4] Substitute : kingfisher ; tip of cock's hackle, dyed blue.

b. *A way of dressing a Jock Scott.*

The manner of putting on a tag of silver tinsel has been described above ; it remains to give here a method of tying the compound tag. Fasten in the tying-silk, wind it in very even coils to the left, tie in a short piece of silver thread ; take silk about an eighth of an inch forward ; attach the pliers to the thread, wind two or three turns only to the right and secure it with the tying-silk. Cut off and tease out the waste ends. Fasten in with the next turn a short length of split floss-silk and carry the tying-silk to the tail-seating ; wind the floss very evenly to the same point, secure it with a turn of silk and cut off the waste end with a slanting cut. Floss-silk that is sold in the skein will always be found to lie much more evenly on the shank, if it is divided and all twist removed and again halved before winding it ; to avoid the trouble of doing this I usually buy mine untwisted, on a reel and ready to be split with the stiletto. Another way is to take tying-silk almost to the butt, tie in floss here and form the second half of the tag by winding the material to the edge of the thread and back again (see fig. 137).

The tail is tied in the ordinary way and is followed by a butt of ostrich-herl or of black chenille (see pp. 289 and 290). Tie in the tinsel and, half-way up the section, a length of lemon-coloured floss to form the posterior joint ; take the silk up to the middle of the body ; wind the silk very tightly back to the butt and then forward ; wind tinsel, cut off the waste-ends and hang the pliers on the silk.

The toucan breast-feathers (if they are available) should now be prepared, so that they will sit correctly on the body. In the first instance, when making a selection of these feathers, due regard should be paid to the picking of those which are approximately of the right length. Take half-a-dozen of them and measure them, so that they are a millimetre longer than the newly-constructed joint ; make a nick in them at the point where they are to be fastened down, that is, close to the lowest fibre ; wet them, place them all together in a bunch, taking care none of the stems to the right of the silk crosses another and bind them down tightly on top of the shank. Tie in by an exactly-similar process the second half of the veiling, which ought to lie under the shank and precisely opposite to the first bunch of toucan-feathers. Wind another butt of ostrich-herl and cut away all waste, preparatory to starting the foremost or anterior joint (pl. 56 (vii)). If two hackle-points are employed as substitutes for the two bunches of toucan-feathers, they should be measured, nicked and tied down in the same way ; but the waste fibres beyond the nick should be stripped off between the nails of the finger and thumb. Golden-pheasant toppings are also good substitutes. If you find, after tying them into position that they are too long, clip them a little rather than attempt to adjust them by pulling the stems through the coil of silk.

The formation of a floss-silk body, ribbed with flat tinsel, guarding silver-thread and hackle has been described above (p. 290), so that further comment is needless ; the winding of the throat too presents few difficulties. The final and hardest stage has now been reached, namely, the construction and securing of the wing.

First of all, make perfectly certain there is a firm foundation for the wings, which ought, at least, to be as high as the seating of the throat. If the foundation is lower, the tying-silk, when pulled tight, will force the wing-materials to stand up from the shank, at an angle, perhaps, as great as forty-five degrees. Five or six coils to the right and the same number back to the spring of the throat-hackle should be enough. But this will vary with the size of fly you are dressing and of the lump caused by the wound stem of the throat. On the whole, it is better to wind the throat after the under-wing.

Place the turkey-tail strips together, back to back, and with the right-hand strip nearest to you (the right strip for the right wing) and tie them in very carefully on edge, so that they stand low and almost parallel to the shank and with the tip of the feathers hardly projecting beyond the line, where the tag begins (pl. 56 (iv)). It will be found of great assistance, in adjusting the set of the fibres, if the piece of split-quill is allowed to remain, until the strips are fixed. The system about to be described of constructing a built wing is, in my opinion, far too complicated and cumbrous to warrant all the trouble expended. Also the inevitable result is a large head, the reverse of which is the hall-mark of good workmanship. I have, therefore, given up tying in the mixed sheath in three instalments and, instead, marry all the fibres into a single pair of wings ; but the method of dressing a fly fully is described here for the sake of completeness.

Take strips of dyed swan-feather, yellow, scarlet and blue, and marry them in the manner shown in figure 142. Only strips from the same side of the centre quills will marry ; and right and left strips must always be employed on their corresponding sides. Tie these in on each side of the under-wing, taking great care that at least half of the turkey-tail is visible. Then marry a narrow strip of bustard with one of florican and tie it down, so that the preceding feathers can plainly be seen (see pl. 56 (v)). Over these put married strands of cinnamon and grey turkey-tail and finish with some lengths of peacock sword-feather. There is thus a succession of strands that overlap without screening each other. At first, it will be found difficult to arrange them, so that they fall permanently into place, but humping them helps to a certain degree. By this is meant the gentle bending of the compound strands, until their shape reminds one of the low-pitched arches of certain of the bridges built during the Commonwealth. Tie down the strands with the turns of silk taken to the right ; a single turn wound very tightly and held taut, while the next strand is being placed in position, should be enough to hold the feathers, especially as the early strands will be gripped by the subsequent turns.

In the old patterns, married strips of summer-duck and teal were tied across the centre of and on both sides of the wing. These strips were put on, so that they extended as far back as a point vertically above the beginning of the body. Summer-duck is almost unobtainable to-day and, at best, its price is prohibitive. Modern fly-dressers content themselves, therefore, with teal-sides or, in large patterns, with strips of tail-feather from a Lady-Amherst pheasant tied in at a level that makes them hide the upper part of the sheath.

Above the sides is tied a pair of strips of bronze-mallard, forming, as it were, an apex-tile to the roof ; the strips should be put on their corresponding sides, that from the right side of the feather constituting part of the right wing. The quill should be left on the mallard-strips, until they are securely in place ; otherwise the fibres will split and stand up from the fly. The jungle-cock and the blue-chatterer or the kingfisher feathers are now tied in and followed by the topping and the horns.

The shape and length of the topping are points worth a great deal of consideration, if the fly is to look really well. The topping should have a natural curve, which encourages it to follow the slope of the top edge of the wing. The tip should curl round to meet the tip of the topping in the tail ; the fly will thus have the appearance of being surrounded with a sort of *aura* or halo of sparkling light. The shape, the colour and the brilliance of the golden-pheasant toppings go a long way towards making a fly good to look at ; they should, therefore, be fresh stock, as old toppings are pale, almost bleached, and lack lustre. The shape of toppings can be altered at will by steaming them and by drawing them, when they are soft, through the fingers, until they acquire an even curve (see p. 304, where *bottling* toppings is described). From time to time, specimens will come your way that obstinately refuse to sit squarely on the shank ; examine the roots of these and it is almost certain you will find they are skewed round, sometimes as much as forty-five degrees. But any of these can easily be steamed soft and twisted straight, one pair of hackle-pliers having been attached to the stem of the feather and another to the useful part of the topping, but only half an inch or so away from the first pair. In dealing with toppings, remember that the section of the quill near the fibres at the base of the feather is three-cornered. Flattening the quill at this point often helps in tying in the topping straight and plumb.

§ 2. *Dressing a mixed-wing and silver-bodied pattern.*

Silver Doctor: materials required (see pl. 1).

Tag: silver tinsel or silver thread and yellow floss.
Tail: topping and chatterer.
Butt: scarlet Berlin wool.
Body: flat silver tinsel, ribbed with oval tinsel.
Throat: pale blue hackle, followed by widgeon or teal.
Wings: tippet in strands with strips of golden pheasant tail over as an under-wing; sheath of married strips of dyed swan, yellow, blue and red, bustard, florican, peacock secondary, mottled and cinnamon turkey-tail; narrow strips of barred summer duck and teal married and fastened in across the sheath; narrow strips of bronze mallard along the top edge of the sheath; a topping over all.
Horns: blue macaw.
Head: scarlet wool.

Maxwell gave on page 150 of his *Salmon and Sea Trout* a slightly different dressing of the Silver Doctor; the blue feather used now as a throat was wound as a hackle up the body and the throat consisted of a jay's hackle. Anyone who knows how delicate are ribbing-hackles and how tiresome to prepare as hackles are jay's wing-coverts, unless the latter are freshly killed (see pp. 304, 305), will agree with me the modern pattern is far better. I have discovered, also, that the fly fishes better and probably catches just as many fish, if the under-wing is omitted. Perhaps, however, this is merely an idea due to my preference for spareness and slimness in a fly.

Once upon a time, I met an Irish parson, who had similar views on the style of dressing salmon-flies and also a curious theory, all his own, about the influence upon a salmon of the scarlet wool at the head of a Silver or a Black Doctor. He had three things to say about this and other cognate matters. First, he liked to use a Silver Doctor that had seen a lot of service, because the colours in the wings had been toned down and had the appearance of the scales of a fish. He liked the fly dressed thin ('htin,' I remember, he pronounced it). And he thought the scarlet wool, usually wound at the head, ought to be moved to a point, just short of the wing-seating, and the head left pale and unvarnished. He was convinced the eye of the salmon would thus be kept on the middle of the fly itself, instead of on the head and, *ipso facto*, on the gut attached to the head. Ingenious the last argument certainly was, but hardly admissible; I rather suspect that parson of possessing a peculiar sense of humour.

a. *Special points that arise while dressing a Silver Doctor.*

By far the best way of constructing a wool-butt that will hold its shape is to tease out the wool, until it is short and loose, and to spin it on the tying-silk in the shape of a spindle. The twist imparted to the silk should always be in a direction *from east through south to west*, that is, clockwise or the natural way to spin with the left thumb and forefinger. If, however, the dresser makes it a rule to wind the silk under and towards him, instead of in the more usual direction, the dubbing should be spun on the silk in the other way. Twisting the silk in the opposite direction has the effect of taking the spin out of it and the dubbing falls off. The fibres of the wool should be applied thickly, so that one turn of the spindle ought to result in a good-sized butt. Draw the silk down very tightly to prevent the butt moving sideways, take two turns of tying-silk close up against the base of the butt and proceed to tie in the body-materials.

As a general rule, the oval tinsel looks far better, if it springs from *the near side* instead of from the top of the body (fig. 138); it should, therefore, be tied down touching the lower edge of the flat tinsel. After these two have been secured, fasten in *on the far side and by its centre* a length of split floss-silk and wind the right half very evenly and *very tightly* up to the shoulder; wind the other end to the butt very tightly and then forwards to the shoulder; this is the foundation for the tinsel and it helps in some degree to fill up any gap left by the foundation of waxed tying-silk. See that the floss-silk begins in the gap, which will ensure a good taper to the body-foundation; and bind down the tinsel-ends very tightly with the first four or five turns of the left-hand half of the floss. Take hold of the free end of the flat tinsel with finger and thumb, wind it tightly and evenly up to the shoulder and fasten it down with two turns of silk. Polish the tinsel with a narrow strip of chamois-leather (see fig. 87). Follow it with about five turns of ribbing tinsel and fasten this down also. The flat tinsel should, at all points, lie edge to edge with itself without riding anywhere. The ribbing must be wound in a true spiral, otherwise the coils will run along the body and get loose; a diagonal pull during the winding of the oval tinsel will prevent this happening. *Always wind tinsel very tightly.*

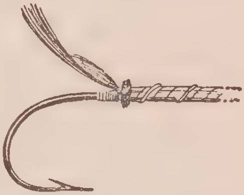


Fig. 138.

Shows the spring of the oval tinsel and the spacing of it.

The securing of the tinsels needs mention. Cut the oval tinsel off within an eighth of an inch or so of the turn of silk, pull off the waste metal, tease out the floss-silk core and flatten it out. But bend the flat tinsel backwards and forwards, until it breaks close up to the binding; a rough and upturned edge will now be formed, which will stop the tinsel slipping under the tying-silk. Tie in and wind the blue throat-hackle, press the top fibres aside to make room for the wings and build the usual foundation, which, in size of hook, no. 1, will be six or five turns forward and the same number back.

The formation of mixed wings is very similar to that of built wings, but is less complex. In the Silver Doctor there is an under-wing of tippet in strands with a pair of strips from opposite sides of a golden-pheasant tail-feather. The strands should be torn from the quill, with the happy result that the fibres are automatically straightened. The web from the pheasant tail should be cut away with the split quill still adhering; this will help you to coax the fibres into a curve that will embrace the tippets and lie almost parallel with the shank (pl. 56 (i)). In past seasons, I have found it rather an advantage to leave out the under-wing and start with the sheath, which I make up in the following way. Separate the swan-feathers from each other as far as possible by introducing between them strands of peacock etc. Put the paler strands towards the top of the half-wing and repeat the order for the second half. The rest of the wing is tied according to the methods described earlier in the chapter ; only the arrangement of wool at the head needs separate discussion (see pl. 56 (ii and iii)). If the dresser has decided to put a scarlet head on the fly, he can either paint it over the varnish with a solution of red sealing-wax in pure methylated-spirit or dub it narrowly with scarlet wool. I am so far a sceptic in these matters that, if I put any red at all on the head of a Silver Doctor, it just amounts to a narrow line of sealing-wax paint.

With the other ideas of that Irish parson, namely, that flies should be dressed 'htin' and that mixed wings are more attractive, when they have been knocked about a little, I agree wholeheartedly. The reasons for these things are far to seek, unless their origin and their value are alike due to the imagination of the fisherman ! I think it is, because a pattern, in which, for some cause or another, the angler has faith, soon acquires the reputation of being better than a fly that is unproved or little used.

§ 3. *How they tied flies by the River Spey.*

Spey rises in Truim Well and in Loch Spey and travels a hundred miles through Kingussie and Grantown to the sea at Garmouth. Below Boat of Garten she is a river of great power, which is said to have caused the creation, in past days, of a special type of fly (see pp. 333 and 334). To-day, these patterns have largely given way to Jock Scott, Butcher, the Doctors and many others, including the recently-invented Delfur Fancy. This is purely the historical aspect of the matter ; for angling purposes Carron, Purple King and the others mentioned by Knox (q.v.) are as reliable as ever. The characteristics of this type are strip-wings of bronze-mallard, dressed horizontally, a wool-body, ribbed criss-cross with narrow tinsel and with wire, and a long mobile hackle and throat, which give in heavy water of moderate flow an appearance of life unapproached by any other style of fly. The original kind of hackle was that of the Spey-cock, a particular breed of capon which was formerly common in eastern Scotland ; but these are to-day rather difficult to obtain. The neck or the saddle-feathers of the heron are used in some patterns, in Lady Caroline, for example. One pattern is just as good as another ; but there is something about the Spey-fly that makes me think it is dressed in the most rational way yet achieved of simulating life struggling beneath the surface of the water.

ii. *How to tie a Lady Caroline* (see pl. 50).

Tail : strands of golden-pheasant breast-feather.
Body : olive-green and light-brown Berlin wools twisted together, two of brown to one of olive-green.
Ribbing : narrow gold tinsel, oval silver and oval gold tinsels.
Hackle : grey-heron, or hackle from the rump of a blue game-hen.
Throat : golden-pheasant breast-feather.
Wings : bronze-mallard strips.

Fasten a very light iron into the vice and make a foundation of the finer tying-silk instead of using the heavier whipping-silk, the aim throughout being to dress the fly as sparingly as is consistent with strength and durability.

Tie in the strands of wool (fig. 139). Strip from the heron-hackle the lower fibres and double those remaining; lay this aside until the shoulder has been reached, as it is, I think, far better practice to wind the hackle tailwards, after the body has been formed. Tie down with one turn the tapered end of the flat gold tinsel to the side of the shank and, with the next secure the narrow oval tinsel, which is to act as a guard to the hackle. Take the silk a few more turns to the right and tie in the third length of ribbing. Wind the wool evenly to make a thin body and fasten it down at the shoulder with the tying-silk which should have preceded it there. Now take up the tinsel with the pliers and complete the ribbing, following it with the guarding-tinsel. The tip of the hackle should then be tied in at the shoulder and wound down the body, behind the oval tinsel, as far as required (fig. 140); the wire is then brought up the body very tightly and in the opposite direction, so that it holds the hackle securely at four or five points. Pick out the fibres to form little tufts projecting from the body, as shown in figure 141. Take two firm turns over the hackle-stem, bend it right back to form a nick, pull the silk tight and cut off the waste of the stem. Do not break off the tip of the hackle, but cut it carefully within one-eighth of an inch of the silk; the waste of the wire should be *twisted off* at the shoulder. Fasten in and wind a doubled hackle

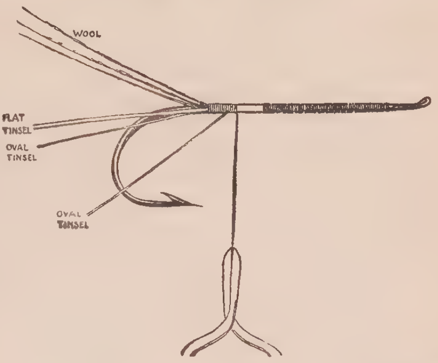


Fig. 139.

Body-materials of Lady Caroline tied in.

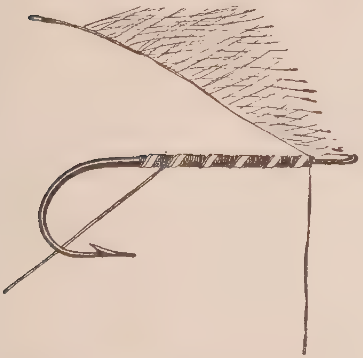


Fig. 140.

Third tinsel left behind to be brought up over the ribbing-hackle.

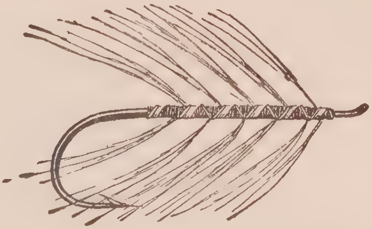


Fig. 141.

Body-hackle wound and third ribbing-tinsel wound up the body, securing the hackle.

of teal or widgeon. Bring the silk carefully back almost to the hackle-seating, so that a firm foundation is made for the wings.

Winging a Spey-fly can be successfully accomplished, if the strips are carefully chosen from the material available. The right kind of feather to select is described on page 269 ; but in this type of fly it is essential that the tips of the wings shall not project beyond the bend of the hook and that the pale waxy roots shall be included. Horizontal wings are tied in separately (see p. 281) ; and this method requires the silk to be reversed for tying the second wing and brought back to the point where the first was secured. This is rather a disadvantage in making a small head to the fly ; but with practice the later turns of the silk can be worked down in between the earlier coils, so that the size of the head can be kept quite small.

CHAPTER TWENTY-EIGHT

SOME WAYS OF TYING SALMON-FLIES (*continued*)

§ 1. *More concerning fibres and the marrying of them.*

THE process of marrying single fibres from different feathers, so that a composite strip is constructed, is at first rather difficult. The following paragraphs have therefore been included to describe it in some detail. Dr Pryce-Tannatt gives a method of doing it, which, by his permission, I quote here *in extenso*. The reader is supposed to have cut fibres from the left-hand web of all the feathers employed in the sheath. These are to form the near or right-hand half-sheath. ‘ Lay each “ left ” strand side by side between the forefinger and thumb of the left hand, the tip of each strand projecting a little beyond the one immediately preceding it. Having collected in this manner as many strands as the fingers can hold comfortably, grasp the bases together with the right forefinger and thumb, and, with a firm but gentle stroking movement of the retaining forefinger and thumb of the left hand upwards and to the left, make the strands adhere to each other ’ (*How to Dress Salmon Flies*, p. 165). Figure 142, which is based upon figure 81 in his book, will make the method of marrying quite clear. The process will, of course, have to be repeated, when constructing the left or distant wing.

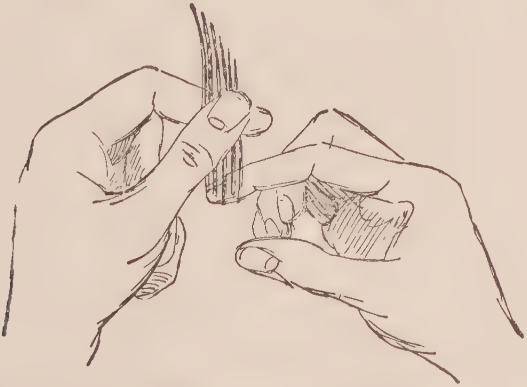


Fig. 142.

THE FIBRES IN POSITION PREPARATORY TO MARRYING THEM

Another way of causing the fibres to adhere, which I have now adopted because I have found it easier than the former, is to place them individually and edge to edge and thus build up the wing with a single strand as a base. The only difficulty is to taper the under edge of the tip of the sheath ; even this, however, is achieved with practice. In every sheath designed for flies dressed on hooks greater than no. 5, there should be ample breadth to accommodate at least two fibres from every feather used. Provide yourself, therefore, with this quantity of material and arrange the fibres in the order in which they are to appear in the wing ; and put the left-side fibres on the left of the table and the right-side on the right. Split single fibres from the two lowest in the order and marry them, taking care the tip of the higher just overlaps that of the lower. Lay the lower fibre in the groove between the closed forefinger and thumb of the left hand with the tip pointing to the left. Place the next fibre above and edge to edge with it. Humour the two fibres, bending them back until they are slightly 'humped' and then straightening them out. The bending opens the 'claws' of the fibres, so that they interlock easily. Repeat this process until every feather is represented in the half-sheath by a single fibre. Then make a second half-sheath with the remaining fibres, retaining the original order, and marry it to the first block of fibres. If the work has been done accurately, the sheath ought to have the appearance of that shown in plate 50 and the under edge evenly tapered to its extreme point.

In nine cases out of ten, it is the aim of the dresser to tie the wings with their lower edges as nearly as possible parallel to the shank ; a fly thus winged has a better *entry* and swims better when it is under the surface. But all the care expended in the preparation of the sheath will be wasted, if the foundation for the wings has been badly constructed (see p. 309).

It is the practice of some dressers to marry together strips consisting of two or three fibres of the same feather, thus obtaining an effect very like that produced by the different colours in a Neapolitan ice, an effect that possibly has some definite value. My own taste inclines towards the more subtle colour-rendering of the sheath made from single fibres , the fly so dressed looks efficient and irresistible, but the opinion of the salmon on this and on many other matters has yet to be canvassed.

§ 2. *Gut-wings for salmon-flies.*

The tawsy ends of gut and the fine trout-gut, which otherwise would have been thrown away, can be made use of as material for wings. Dress a silver-bodied fly of the type of the Silver Grey as far as the throat. Collect a small bunch of fine gut (not thicker than 2x), tie them in together at the shoulder, so that they droop over the body as would an ordinary wing. Bind the ends down securely, taper the head and finish off. A permanent curve should now be put into the gut, so that it naturally curls over towards the butt ; this should be done by drawing the strands, one by one, through the side of the forefinger and the nail of the thumb of the right hand. I first learnt of this style of winging from the late William Mieze, who, as far as I know, invented it for himself.

In the early years of the twentieth century, a series of patterns, known as prismatic flies, were invented by W. Baden-Powell, Q.C. The wings and hackles were composed of fibre or gut, dyed various brilliant hues, and the bodies were hardly less gaudy. For some unknown reason these flies have not become popular, although they ought to succeed as well as those mentioned above. I think the lack of popularity may possibly be due to the straw-like feel and the pricking of the material of the wing, when it is dry ; although the fibre becomes soft and pliable, after it has been a short time in water. A picture of one of these prismatic flies is given in plate 55.

§ 3. *A short method of preparing strip wings.*

Here is a very simple, but rather amateurish, way of tying on a pair of wings made of strips of the scapular or bronze feather from the mallard drake. A better method is described on page 318. It is a method that can be employed in tying wings made of other feathers ; but it is especially useful in giving the fly-dresser a chance of getting on even terms with the most obstinate of feathers, those of the mallard, the teal, the widgeon and the pintail (Hale, p. 82).

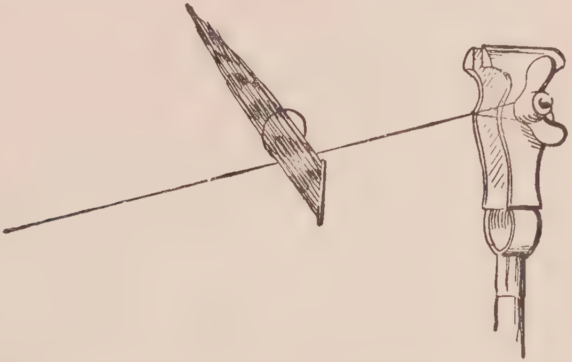


Fig. 143

COLONEL HALE'S QUICK METHOD OF PREPARING A WING.

Cut from the feather a strip of web of the desired width ; take a piece of silk, slightly waxed, and in the middle of it tie an open thumb knot ; in this loop place the piece of web (fig. 143) and draw it tight enough to get a slight grip on the strands without, however, disturbing them ; hold one end of the silk between the teeth, curl the other round the third and fourth finger of the left hand and hold the web very firmly between the thumb and forefinger of each hand (fig. 144). Draw the silk taut and cut the silk off close to the knot. If care has been taken to place the knot at the point on the web at which it is to be tied in, the last process, that of tying the wing on, will be found quite easy ; but the turns of the silk binding the web down to the shank must be on the head side of the thumb-knot, otherwise the fibres will be displaced. This is an easy method of tying wings, when one is in a great hurry ; but I could hardly recommend that it should be allowed to supplant the more usual and certainly more scientific one described on pages 281 and 282.

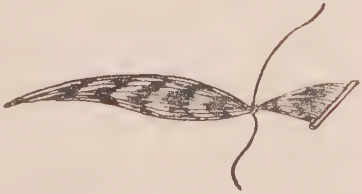


Fig. 144.

THE STRIP PREPARED.

Kelson's comment on it was : 'This plan is as old as the hills, and an excellent way of "winging" for novices.'

§ 4. *Preparing toppings.*

Golden-pheasant crest-feathers have a habit of growing with a twist that makes them very awkward to handle, when they are being put on as tails or as a covering to the top edge of a wing. Further, the stem of this feather is triangular in section, so that the natural tendency, when being tied, is to turn round with the pull of the tying-silk. There are, therefore, two problems to be faced : the bad shape of the topping and the difficulty of making it sit straight on the shank of the hook.

One method of reshaping a topping is to steam it thoroughly and stroke it gently into a curve ; this is not very satisfactory.

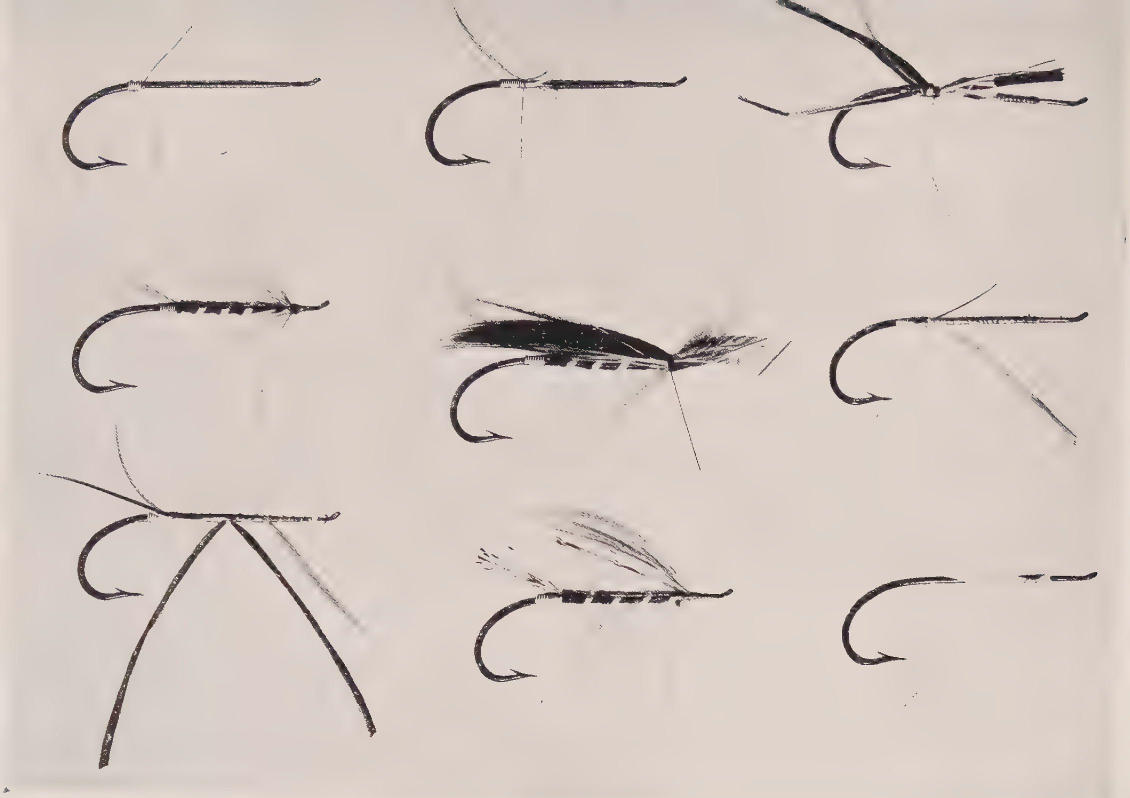
A better way is to *bottle* the topping. Get some small bottles and test-tubes, the arcs from the circumferences of which are approximately the same as the curves you desire to set in the toppings. The largest you need is as large round as a wide-mouthed four-ounce glass-jar ; the smallest is one of the test-tubes that hold a bare quarter of an ounce. Soak the toppings in warm water, or in your mouth ; the latter is better. Then stick the toppings on the tubes or jars, selecting the sizes appropriate to feather and the curve it is desired to set in it. Be sure the feather is clinging to the glass and in the same plane as the circumference of the surface and that all fibres are close together. Leave them to fall off, which they will do only when they are properly dry. Before tying down a topping, nick the stem close to the lowest fibres by holding it with a pair of pliers and bending the fibres back ; it can then be easily and securely fastened.

§ 5. *How to split a jay's wing-covert.*

These feathers, which are a brilliant blue barred with black, are used extensively as throats for many patterns of Irish salmon-flies. In most of the feathers on a wing, only one side of the quill bears enamel, the other or grey side has to be removed, by splitting the feather down the centre. One way of doing this is by cutting up the middle of the quill with a pair of very sharp scissors, scraping out of the quill the white pith and trimming the edges of the divided quill, until it is thin enough to be wound without a large amount showing. The pith is then scraped away with a movement of the finger-nail or knife-point from the stem to the tip of the feather ; otherwise the delicate fibres may be broken off.

Coverts taken from the right wing of the jay have the blue enamel on the right of the quill. When these are used as hackles they must be wound in a direction opposite to that employed for the left-side coverts ; and, as is usual when a hackle is about to be wound in the reverse direction to the normal, the silk also should be reversed.

A better method of splitting a jay wing-covert is that recommended by Traherne. Fix the stem of the feather in a vice, so that the fibres lie in a horizontal plane. With the left forefinger and thumb, take a firm but small hold of the tip and with the same grip of the right hand take hold of a few fibres on the other side of the centre-quill. Keep the feather, as a whole, taut and draw the two halves apart (fig. 145). Two things are essential, if the second process is to be carried out successfully.



BLUE CHARM

Plate 57

TOP ROW :—I. TINSEL SET IN. II. TAIL TIED. III. SHOWS WASTE, ETC. READY TO BE TUCKED INTO GAP.
MIDDLE ROW :—IV. THROAT WOUND ; FOUNDATION PREPARED. V. WINGED WITH NARROW DOUBLE STRIPS OF BROWN MALLARD.
VI. TINSEL BODY TO GO UNDER DUBBING.

BLACK SILK

BOTTOM ROW :—VII. HALF-WAY THROUGH BODY IN CROSFIELD'S BLACK SILK. VIII. UNDERWING : BLACK SILK. NOTE THE WAY IN WHICH THE THREE COMPONENTS STAND AWAY FROM ONE ANOTHER. IV. THE PRYCE-TANNATT METHOD OF STARTING FROM THE HEAD. (SEE PAGE 318.)

The feathers must be fresh. The grip of one hand must include the grey side of the tip as well as the tip itself. If the pull is even and along the main axis of the quill, the blue-barred portion will leave the rest quite easily ; and only a narrow base of stem will remain adhering to it.

§ 6. *Old wings on new bodies.*

Well-constructed wings often outlast the rest of the fly ; sometimes the point of the hook is broken off, or is too short to yield to the kindly offices of the escapement file or slip of whetstone ; the tinsel has been torn or the hackle has come adrift ; perhaps the gut-loop has perished. Any one of these calamities may easily overtake the last available specimen of a favourite pattern, when the tackle-shop is far away and fly-dressing materials have been left at home. It may even happen at the waterside, when the last specimen you possess of a certain fly has lost its point. If you are of the opinion that a fly of the same size but of another pattern will fail to raise fish, you can, if there is a spare hook and a small quantity of tying-silk available, use the old fly, until a new one can be dressed.

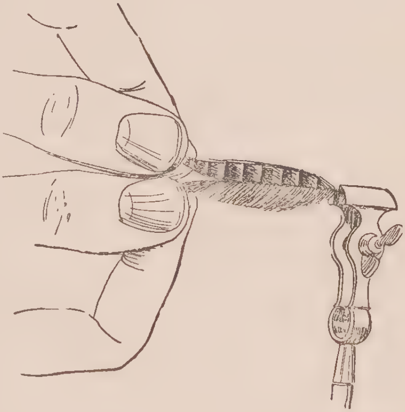


Fig. 145.
A METHOD OF SPLITTING A JAY-HACKLE.
Care should be taken to keep the feather taut throughout.

Tie the naked hook on the end of the cast, place the old fly by its side and make two firm whippings to hold the two together, one at the bend of the hook and a second behind the head. Before tying them together, you should break off the old hook at the middle of the bend to prevent the broken part coming in contact with the salmon's mouth before the sharp point of the new hook has had time to penetrate.

When you get home, dress on a new hook the body and hackle of the fly, going through every process, in fact, except the winging. Prepare a very slim foundation for the wings. Take a very sharp knife and, holding the old fly upside down between the forefinger and thumb of the left hand, make a deep incision through the coils that are holding the wing. The cut must be taken as deep as the metal and be exactly in line with and in the middle of the under surface of the shank. As soon as you are satisfied the wing has been separated, lever it up gently from the neck of the old hook and place it upon the neck of the new hook. If the cut is cautiously opened to admit the shank, this operation will present little difficulty. Adjust the position of the wing, until it is sitting where a freshly-built wing would naturally be, and take one loose turn of silk over it just behind the old silk binding ; hold the wing very firmly with the left forefinger and thumb, draw the turn tight, keeping the wing upright all the time, and hold the silk taut ; with the edge of the knife loosen the old binding, until it can be picked off with the forceps ; take two more turns of silk to the right and soak the roots of the wing with celluloid-varnish. Finish off in the customary way. I have winged a number of half-dressed hooks in this manner with wings taken from superannuated flies and from those the gut-loops of which had become unserviceable. They have amply repaid the little trouble they cost me to make up.

§ 7. *A few useful salmon-fly patterns.*

I have felt some diffidence in mentioning only a few of the standard patterns and in omitting the rest. But I have taken my courage in both hands in the knowledge that many of these patterns have caught fish in the past ; and it would, at any rate, be foolish to expect anything like a fair measure of agreement on a subject, so delightfully controversial as salmon-fly dressings. If the reader really wants to see what can be done in the way of collecting and inventing new patterns, let him turn to Kelson's list of standard flies, about three hundred in all, or to that in Major Hale's *How to Tie Salmon Flies*. Many flies are common to every list ; but the collection of names of salmon-flies, drawn from all available sources by a friend of mine, has already reached a total of over six hundred.

From the historical standpoint and for the sake of completeness I have decided to include the dressings of a few of the well-established patterns ; but I am confident that, in the near future, many salmon anglers will neglect these types of fly in favour of something simpler ; and that on low water their place will be taken by flies specially built for that condition and employed in a way entirely different from that in general use to-day (see p. 315).

Turkey Jackson.

Hook : from 3 upwards.
Tag : fine silver thread or narrow silver tinsel.
Tail : topping.
Body : seal's fur, lemon, claret or vermilion, and black in equal sections.
Ribbing : silver tinsel.
Hackle : black cock over the black seal's fur.
Throat : speckled gallina.
Wings : cinnamon or dun turkey tail-feather strips tied on flat in the manner of a Dee fly : sometimes the wings are tied on edge and to the upper edge of the turkey strip is married two strands of scarlet swan or turkey.

This is a dressing of Mr Jackson of Dumfries and has, in various sizes, proved itself an extremely good pattern ; but I believe it essential to the full success of the fly that the wings should be chosen from a tail-feather with a pale margin of considerable width (see Dun Turkey or Dun Wing ; Maxwell, p. 170).

Black Doctor.

Tag : silver thread and yellow floss.
Tail : topping and chatterer.
Butt : scarlet wool.
Body : black floss (I have also used seal's fur with success).
Ribbing : oval silver or flat silver tinsel followed by thread.

Hackle : cock, dyed claret or magenta.
Throat : speckled gallina.
Wings, etc. : as in Silver Doctor (p. 296).

The weakness of this pattern consists only in the hackle, which, in accordance with the habit of all ribbing-hackles, soon breaks or drags its moorings. A good plan to avoid this is to employ the magenta hackle as the throat and wind a few turns of gallina hackle in front of it ; or carry a fine silver thread down the body, over the hackle stem and the reverse way of the tinsel (in the Spey manner, see p. 299).

The Black Doctor is a good dark-looking fly for a dark pool ; at least, that has been my experience. Another dark pattern is the famous Thunder and Lightning, which, in a small size, is traditionally a low-water fly.

Thunder and Lightning.
Tag : silver thread and yellow floss.
Tail : topping and Indian crow.
Body : black floss-silk.
Ribbing : oval gold tinsel.
Hackle : deep orange-red hackle starting half-way up the body.
Throat : jay.
Wings : bronze mallard, the white roots showing near to the head of the fly (in the large sizes there should be an under-wing of brown turkey-tail) ; jungle-cock sides and a topping over (the inclusion of the cheeks is optional).

Another magnificent dressing is the Silver Grey ; it is a fly that, by universal consent, is unequalled by any other, because it has been found so deadly on all rivers and in many parts of the world. Sir Herbert Maxwell considers it represents a shrimp ; but, looking down upon it from the parapet of a bridge or from the top of a high river-bank, I have often thought it was a most striking imitation of a small fish. In dressing this pattern, great care ought to be taken that the colour-scheme, as indicated by the name, is maintained throughout.

Silver Grey.
Tag : silver tinsel, or silver thread and yellow floss.
Tail : topping and sides of summer duck or jungle cock.
Butt : black ostrich or black chenille.
Body : silver tinsel, ribbed with oval silver tinsel.
Hackle : cuckoo or creel cock's feather from the middle of the body ; or badger cock.
Throat : teal or pintail.
Wings : under-wing of tippet in strands ; mixed sheath of married fibres of white, yellow and green swan, of bustard, florican and golden pheasant tail (I recommend that peacock secondary be substituted for the last-named) ; married strips of barred summer duck and pintail ; narrow brown mallard strips over ; cheeks of jungle cock and a topping over all ; horns of macaw.

If the tippets forming the under-wings are omitted, little will be lost of the fly's attractiveness and much will be gained by removing some of the bulk that has to be tied down at the head. It is always a good working rule in fly-dressing to grasp with outstretched hands any legitimate chance of reducing the size of the head ; a small head looks neater and offers less resistance to the water than does a large head, so that a fly with a small head has a better *entry* and swims far better beneath the surface.

Blue Charm.

Tag : silver tinsel or thread.
Tail : topping.
Body : black floss-silk, ribbed with silver thread or very narrow oval tinsel.
Throat : blue.
Wings : broad strips of bronze mallard scapular, a narrow band of teal married to the upper edge and a topping over.

This is a first-class pattern for low water and should, for greased-line fishing (see pl. 50), be dressed with a very short body. The topping is usually left out in modern dressings of this fly. Dressed on a small double iron, it makes a good seatrout pattern.

When the sun is shining unobscured upon clear, rather low, water a small dark fly, worked in and out of the edge of the fast water, provides the only chance on many stretches of taking a fish that, at the best, must be regarded as a chance fish. This is the very work for which Mr Chaytor's Claret Fly was designed ; or, if you wish to employ the standard pattern, there is a Claret Jay, more fully dressed but in every other respect similar.

Claret Jay.

Tag : fine gold or silver thread or wire.
Tail : topping.
Body : claret seal's fur, ribbed with oval gold tinsel.
Hackle : claret up the body.
Throat : jay.
Wings : bronze-mallard, two pairs of narrow strips (see p. 318). *In the Irish pattern there is a small bunch of tippet-strands as an under-wing. Another way of treating the brown-mallard strips is to fold a strip of web four times* (see p. 312). *See that the white waxy roots are included in the wing.*

§ 8. *One of Ernest Crosfield's methods.*

Here is a compressed account of the manner in which Crosfield tied Black Silk, the dressing of which runs as follows :

Tag : four to five inches of silver twist ; yellow floss-silk.
Tail : topping and a few strands of tippet.
Body : black floss ribbed with oval silver tinsel.
Body-hackle : bright claret.
Under-wing : tippet strands, the point of a golden-pheasant breast-feather and one or two toppings.
Throat : blue jay.
Over-wing : six strands from golden-pheasant tail and two from Lady Amherst's pheasant tail-feather to be tied on each side. Two narrow strips of dark mallard ($\frac{1}{4}$ to $\frac{1}{8}$ inch wide).
Hook (in this instance) : 1/0.

Construct tag as described on page 315 (figs. 150–153); turn short end back (pl. 57 (i)); take twist up shank in open turns, through eye and make two half-hitches (fig. 146). Set in yellow floss at tag and form it with 6 or 7 turns. Moisten tail by drawing it through the lips and tie in with y.fl. Tie down ribbing-tinsel with three turns of y.fl. Carry y.fl. to middle of shank: pliers. Cut off 15 to 18 inches of black floss, split it by use of stiletto and loop it by middle over y.fl. (fig. 147). Carry y.fl. to three-quarters of the way up body: pliers. Take right-hand side of b.fl. up to shoulder; hang on same pliers. Undo s.tw. and cut off waste short. Take left-hand side of b.fl. to tag very tightly (fig. 148); reverse and a quarter of an inch from tag tie in tip of doubled hc. Carry b.fl. very smoothly to shoulder: long taper up and then short down. Leave full $\frac{3}{16}$ths of an inch for head: pliers.

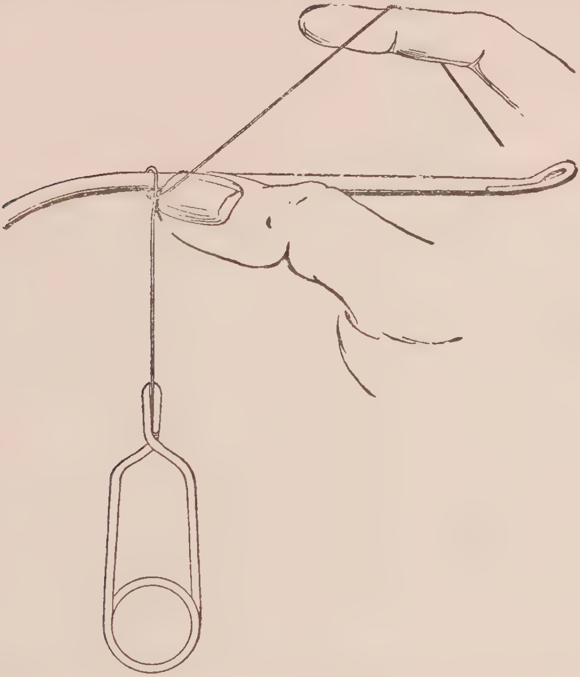


Fig. 146.

AN ENLARGED VIEW OF THE THREAD OF THE TAG BEING SET IN.

Fasten in tying-silk at shoulder to secure b.fl. Wind five turns of tinsel (fig. 149) and secure with five turns of silk; follow with hc.; make all secure with six turns of silk to right to form foundation for under-wing. Under-wing: take 16 to 20 strands of g.ph. tippet, square them, so that they project unevenly, and tie them with 2 or 3 turns to the right on top of the shank. Cut off waste. Tie in on top the point of a g.ph. br. feather and above that one or two toppings, the materials projecting successively. Leave waste-ends (pl. 57 (viii)). Two or three turns of jay-hc.; 4 or 5 turns of silk to make foundation for over-wing. Over-wing:

two strips of 4 fibres each of g.ph. tail ; roll them slightly to prevent them marrying ; and tie them in two bundles on each side of the shank. Square two strips, about ¼ to ⅛ of an inch wide, of brown mallard ; place them on top of one another ; and tie down exactly on top of the shank. Cut away all waste in a taper. Finish the head very neatly ; whip-finish ; varnish twice (pl. 50).

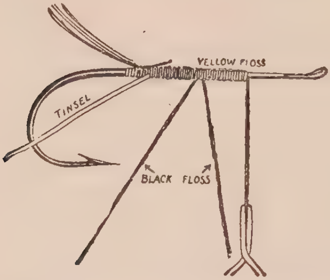


Fig. 147.

Black floss looped in : yellow floss being carried over naked shank up to the shoulder.

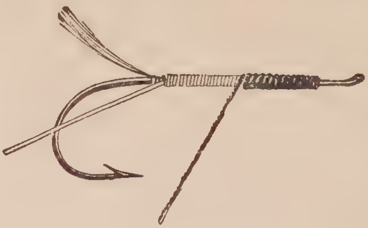


Fig. 148.

Right-hand half of black floss wound : the other half being taken to the butt to hold down tinsel and secure ribbing-tinsel.

§ 9. *The simplified patterns recommended by Mr Chaytor.*

If the reader has read the critique, given in chapter vii, of the book that is to me the greatest yet written on salmon-angling, he will have formed his own opinion of the value of Mr Chaytor's views on the practice of the sport. But I hope he will go further and study the book for himself and, if he does so, he should pay great attention to Mr Chaytor's discussion on flies (p. 34 *et seq.*). The whole tenor of his recommendations is one of drastic and puritan simplification. Flamboyancy and ornamentation that has no fishing value are very much at a discount. Tags and tails and butts are omitted ; and his experience has been that salmon have been willing to take the flies just as freely. At first, you will imagine there will be an irreparable loss on the æsthetic side of the art. I thought so, too, until I discovered how attractive specimens of the Silver and White (see pl. 50) could look, when they had been dressed very neatly, in the right proportions and with bodies of well-burnished tinsel. And so farewell to the superstitious reverence for the gorgeous patterns of the latter half of the nineteenth century. They are most fascinating and for the practice they afford the fly-dresser most profitable to tie ; but for the true purposes of angling the simpler and lightly-dressed patterns (see p. 319 *et seq.*) will serve as well.

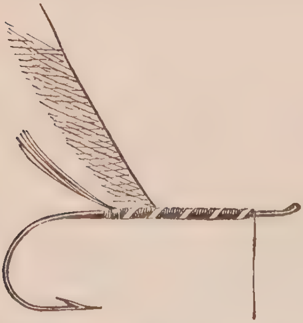


Fig. 149.

Tinsel wound - hackle ready to follow behind it.

The following patterns are here quoted by the kind permission of Mr

Chaytor from his book, *Letters to a Salmon-Fisher's Sons* (p. 34 *et seq.*, 64 and 84).

Silver and White.
Body : oval silver tinsel.
Hackle : white poultry or one dyed pale blue.
Wings : mottled brown turkey tail ; cheeks of jungle cock.

Claret fly.
Body : rough claret wool or seal's fur with a ribbing of broad silver.
Hackle : claret.
Wing : mallard, bronze feather, or brown turkey-tail ; the wings should be set horizontally.

Port fly.
Body : port-wine coloured silk wound very smoothly.
Hackle : 'pigeon's blood' colour.
Wings : turkey tail, either brown mottled or cinnamon.

The first two are designed for use in high and in normal water and are therefore to be dressed on appropriately large hooks. In times of low water he uses a Green Hecham-Pecham, the wing of which is made of the metallic-blue feather with a white tip from the middle or *speculum* of a mallard wing-covert (preferably from the drake) ; and also the Port fly or a Gipps dressed on small hooks.

Gipps.
Body : black and then orange-brown seal's fur, ribbed with narrow tinsel.
Hackle : black.
Wings : dun turkey-tail strips.

Of the standard patterns only one is mentioned on these pages, namely, Jock Scott, a pattern that, above all others, has by almost a century of yeoman service earned its right to survive.

§ 10. *Seatrout-flies in salmon-fishing.*

The patterns used in wet-fly fishing for seatrout are either salmon patterns dressed in miniature or are derived from the lure class of trout-flies. Sooner or later, the angler comes to realize that the simpler patterns are to make and the fewer varieties of flies he carries the more time will there be for dressing himself an adequate supply of these in a variety of sizes ; and the less time will be wasted changing flies by the riverside, when he ought to be changing his tactics. I have referred to this aspect of the subject, in order to explain why I give here only a few patterns of seatrout flies.

The clever manipulation of feathers and other materials in the miniature salmon-flies is, I am sure, entirely lost on the fish and I am, therefore, including in this book only two simple strip-wing patterns, Silver & Blue and Mallard & Claret.

Silver and Blue.
Hook : 4 to 9 or 10 (new nos.).
Tail : golden-pheasant tippet-fibres, or topping.
Body : flat silver tinsel or oval silver tinsel.
Throat : pale-blue cock's hackle.
Wings : brown-mallard, or teal ; sometimes topping over all.

The method of dressing this and the next fly can be seen in the section dealing with the March Brown on pages 275 to 282 of this volume. The mallard strips should be cut, complete with the quill, from a small feather, so that the white roots are included in the fly. A single slip of brown turkey-tail is sometimes tied in between the mallard strips to give the latter a little of the solidity which they lack. I dislike the practice, because it produces a definitely opaque wing, which is not the fly-dresser's aim in this pattern.

Strips cut from the scapulars of all ducks useful to the fly-dresser are very difficult to handle.

The fibres are divorced from each other on the slightest provocation and the roots are more easily compressed in folds than squeezed by the silk in the correct way, which is described on page 283. The true remedy is to employ feathers only of the highest quality, that is to say, plumage taken from ducks in the winter, when they are in their finest feather, and to leave the centre-quill on the fibres, until the wings are secured. The best style in which these wings can be tied is the horizontal, using opposite strips (see p. 281) ; but the one objection is the difficulty of neatly changing the direction of the silk in so small a pattern.

Another method, which dispenses with the need of using mallard-scapulars in pairs, is rolling the feather, that is, taking a width of web, four times that eventually needed in the wing, and folding it by the agency of a pair of forceps. This wing is then tied down as a solid wad of feather, the few refractory fibres from which should be cut with a fine-pointed pair of scissors. But it is essential to any method of winging that the feather chosen should be of the right size, so that the waxy root shall be retained ; these constitute half the attractiveness of the wing and help to bind the web together during the process of tying-down (see also p. 318 for a better method of treating this type of wing).

Mallard and Claret.
Hook : 4 *to* 9 (*new nos.*).
Body : claret mohair of pig's wool ribbed with fine gold wire.
Hackle : claret cock's hackle (from a young bird).
Wings : slips of mallard bronze feather (scapular).
(*If it is desired, a tail can be tied in consisting of strands of tippet.*)

There are many patterns of seatrout-flies, but they can all be tied by following the same principles. A little practice in dressing them on double hooks will be of great value, as this type of hook is, in small sizes, to be preferred to all others on account of its hooking-power. There is in a large double-iron a kind of competition between the two bends, causing the hook to rock sideways, until the hold gives way. This danger of one hook levering itself out of the flesh against the hold of the other is, however, negligible, if it even exists, in hooks as small as 6 (new no.).

There is a great deal to be said in favour of the wingless patterns of seatrout-fly, especially if they are to be used for the skipping-fly method of fishing. Both the palmer (with the hackle dressed down the body) and the hackle fly (of the Blue-Upright type), or that represented by Crimson Badger in plate 50 are well adapted to this kind of angling. The feathers employed, however, ought to be of the best quality obtainable, because the *kick* of the hackle-fibre plays so important a part in the work of attracting the fish

CHAPTER TWENTY-NINE

A MODERN SYSTEM OF FLY-TYING

§ 1. *A short list of materials for fly-dressing.*

THE materials given in chapter twenty-five are complementary to the sections dealing with the methods of dressing flies in the old manner and as laid down in the books of Kelson, Hale, Hardy and Pryce-Tannatt. Many of the feathers, dubbings and silks mentioned in that chapter are not needed in the modern dressings, nor are they necessary to a beginner in the art. I have thought, therefore, an abridged list would be useful, at least, to those who want to learn to tie salmon-flies and who, perhaps, are appalled at the long tale of materials to be procured. A man dresses a fly himself instead of going to a tackle-maker for them, because he wishes to be master of the whole of fishing for salmon or trout, or because he cannot afford to buy shop-made flies ; to the latter of these this section will be welcome, because it will show him how cheaply he can get the effects he desires.

Tools : these have been described on pages 271 and 272, viz. a vice, a pair of strong scissors with curved blades, another pair with fine points, a pair of fine tweezers, two pair of hackle-pliers, a dubbing-needle and a weight to hang on the pliers to maintain the strain on the silk. Two kinds of wax will be needed ; hard transparent wax and a small quantity of liquid wax (see p. 370). Always have at hand a small bottle of celluloid varnish and a fine sable-hair brush to apply the varnish ; this brush should be cleaned in acetone and wiped carefully on a rag every time it has been used. I also recommend the purchase of a small tin of transparent 'Cellire.'

Silks. The minimum requirements in tying-silks are one reel of thick 'elephant' silk or of Toye's french silk, 'la soie,' for the foundations and two reels of hot orange 'gossamer' silk ; this shade and ordinary orange are by general consent the strongest and keep their strength best. Floss-silks are put up on reels of one drachm in weight ; the advantage of buying them in this form is that they are wound flat and, therefore, after being split into halves, are ready for use. The shades you will need are black, pale lemon and orange in Pearsall's range. The most useful colours after these are buttercup-yellow and rich claret.

Tinsels. These are undoubtedly the most expensive items in the whole collection and should be of the best. At least six reels of silver thread and tinsel and also three of gold are needed ; less would restrict one in the sizes of flies that could be dressed. Buy a reel each of fine silver and gold thread ; one apiece of very narrow oval silver, of medium oval silver and of gold, of narrow flat silver, of medium flat silver and of gold and one of broad flat silver. Very fine and solid silver wire is needed for the tags and, in the smallest sizes, for the ribbing of low-water patterns. The gold tinsel is used almost exclusively for such patterns as Claret Jay and, if some other material had on the score of expense to be sacrificed, I would rather do without the gold tinsel and work solely with the silver.

The two feathers of *the golden pheasant* that are essential to modern salmon-fly tying are the crest, or toppings, and the rich red plumage on the breast. Both are needed in many sizes and it is undoubtedly more economical to buy the whole skin, which should cost about ten shillings to twelve and sixpence ; but care ought to be taken to see the tail feathers are in really good condition and the tippets are a rich brick-red. I have always stripped the skin completely of the plumage I think I shall want, namely, all the toppings, tippets and breast-feathers ; the tail keeps its shape far better, if it is laid carefully in a long narrow box. A ladies' corset-box is ideal for the purpose (milliners' shops generally have one or two of these going begging). In choosing a golden-pheasant skin for its tail alone, always select one that has a perfect centre-plume ; this is a most useful feather and unusual to find in good condition. Put the toppings, when you have cleaned in petrol, sorted and ' bottled ' them (see p. 304), into small boxes, on the lids of which the sizes of the toppings are inscribed. Dust them gently with a little ' Insect Death,' obtained from a well-known taxidermist in Piccadilly, London. And, if you wish, fasten the hackles into a small book, as described on page 265.

Dubbings. A small quantity of Berlin wool, scarlet and black, will be wanted as the material for butts, the latter of which is far easier to handle than black ostrich-herl ; but when you come to the dressing of Spey-flies, other shades of wool will be needed. Procure from the poulterer a couple of hare's ears ; the flax from them and from the back is appropriately used in the body of the March Brown. Seal's fur is far more brilliant than mohair and on the whole retains its tint much longer. Buy small wads of this in black, lemon, orange and claret and in its natural colour (if you can get it), the last-mentioned of which is best taken from the skin of a very young animal. The fur from the belly of the grey American squirrel, or blue-rabbit fur, is used to dub the body of Sally ; but fur from the grey mole, the water-rat, or from the baby seal will do equally well.

Dyed hackles can be bought by the dozen in the sizes ordered or the neck can be obtained intact ; the latter is far the better plan. Of these buy watery blue (for the Silver Doctor and Blue Charm), magenta (for the Black Doctor), pale yellow (somewhat deeper than you need, if the water of the river is known to be peaty and therefore acid), orange and claret.

Hackles in natural colours lend themselves to being collected through the good offices of the poulterer ; but take good care to know the prices of those sold by the tackle-dealers, otherwise you may pay too much. Be sure the feathers you pick are in good condition and have no trace of blood on them. From this source come teal-hackles and scapulars, barred and full of contrast, widgeon breast-hackles, the dark feathers from the rump and back of the grouse (an old Irish grouse, shot late in December, often yields specially dark plumage), those from the back and breast of the English partridge (see that you get those which are long in the fibre), the finely-speckled feathers from the breast and apron of the guinea-fowl, known to anglers as *gallina*, the dark brown scapulars of the mallard-drake and a few of the grey (the former are sometime removed from the bird before it arrives in the market) and some of the brown-mottled and of the black-brown white-tipped feathers in a turkey's tail. The grey-mottled, the dun, the cinnamon-turkey tail-feathers will probably have to be bought from the tackle-dealers, as it is rather uncommon for these feathers to reach a poulterer's shop.

Jay-hackles should always be obtained fresh ; the best time is from Christmas until April ; January and February are the best months. For Dee-patterns heron-hackles are needed, both grey and black. And remember to pick some choice cock's hackles, black, badger and rich chestnut. Reject all these that do not reach the extremely high standard you ought to set for your hackles.

The *peacock* provides the herl used as the wings of two special flies, the sword-feathers that figure in the wing of the Jock Scott and the boldly-marked cream and sepia wing-secondaries, strands from which are used in many patterns.

Dyed swan and turkey feathers are used in strands in mixed-wing flies. Swan marries far more readily than does turkey. On that account I recommend it. The colours most likely to be wanted are red (cardinal), yellow, blue, green and orange. A single feather of all these is enough for many flies.

You will need a large choice of feathers from the tail of the hen-pheasant to make wings for March Browns. Collect, also, a few cock-pheasant side-feathers and one or two from the centre, as the fibres of the latter are translucent.

The number of *Hooks* required depends largely on the nature of the fishing and when you are proposing to use the flies. As a start you will find a dozen apiece of sizes 2/0, 1, 3, 5, and 6 adequate in your early attempts, because you will strip the hook of a fly with which you are dissatisfied and use it over again. Later on, you will extend the range to include low-water hooks down to 10 and 11 (see pl. 24).

A fair estimate of the cost of these materials in reasonable quantities is about eighty to eighty-five shillings.

§ 2. *Tying a Blue Charm : modern method.*

The materials needed in dressing this pattern have already been set out on page 308.

Whip on a foundation of heavy well-waxed silk, beginning at the point where the turned wire of the eye tapers away into the main shank, but not to include it, and finishing as much as quarter of an inch (in the large-sized hooks) short of where the tail will be tied. Break the silk, which will leave the ends ragged ; these will bed down very neatly when you have smoothed them round between the finger and thumb. Celluloid-varnish.

Take a length of silver thread ; bare one end of it for a quarter of an inch or so ; hold it against the shank by pressing it with the right thumb-nail ; and with the left hand take the long part round the shank and over its waste end for three turns. Keep the coils in position and pull the thread taut. The waste end is often easier to hold, if a pair of hackle-pliers is clipped on it (see pl. 57 (i) and figs. 146 and 150).

Hang another pair of pliers on the other part of the thread ; take a length of well-waxed tying-silk, lay it across the coils of thread (fig. 151), wind one turn over the silk and double the silk back, so that the next coil of thread will hold it firmly (fig. 152). After a few more coils have passed over this loop of silk, the waste end of it ought to be cut off and the tag carried to the predetermined point. The first coil of thread is to be just opposite the point of the hook (see fig. 150). The width of the tag is a matter of judgment, which can only be acquired by experience and by the excellent training of looking at the work of first-class dressers. Tags made of silver wire, which is very springy, are to be bound very tightly and all the coils should be in position, before the waste is removed.

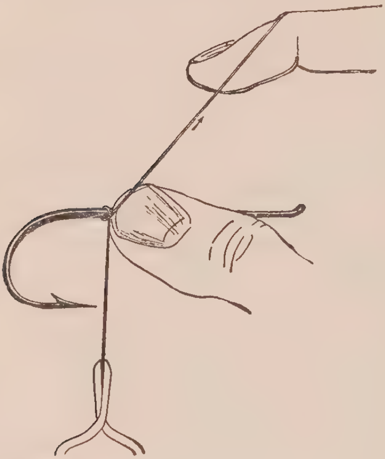
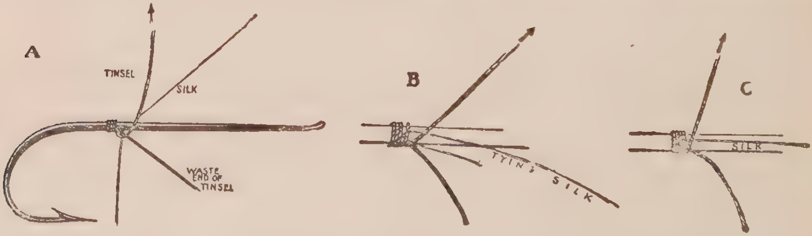


Fig. 150.

Setting in silver thread without the aid of tying-silk (see also fig. 146).

Two close turns are enough to secure the thread, which is done in the usual way. Then hang a weighted pair of pliers on the silk and take a topping for the tail. If you wish to put on a reasonably-thick tail, you will be forced to employ one that is slightly on the large side and, instead of tying it by the quill only, you will be compelled to set it, so that the coil passes over the fibres. The best method of getting the tail to sit perkily and without undue spreading is to hold the quill-end between the forefinger and thumb of the right hand, tighten the silk and leave the curl of the feather to take care of itself. If a bottled topping of the correct shape and size is ready, so much the better (see p. 304). The two turns that bind down the topping ought to be taken on top of the previous two, so that there shall be no gap. Hang on weighted pliers. Celluloid-varnish on the waste fibres.



Figs. 151, 152 and 153.

Setting in silk after tinsel has been secured: two methods. **B** shows the silk looped over and the silver thread holding it down. **C** is the neater way of the two.

Dr Pryce-Tannatt holds the butt of the topping in a pair of hackle-pliers, so that the quill is flattened at right angles to the curve. This gives the proper set to the topping and saves subsequent adjustment and manipulation. If the topping is too long for the fly, it is better to trim it with the aid of a pair of curved scissors than to draw the feather through the turns of binding-silk in an attempt to adjust it to the proper length.

Cut off lengths of oval tinsel, bind it down with two turns to the right and tie in a length of split black floss-silk by one end. Or you can, if you wish, adopt the Kelson method of binding in the floss at a point two-thirds of the way from an end, taking care the longer part shall lead towards the head (see also fig. 137). Wind the shorter part first, smooth it and then take the longer part to the tail and bring it over the first covering to form a perfect taper. This method has a second advantage in that it keeps the outer layer of floss cleaner.

Start winding the floss-silk tailwards, until the butt has been reached, and then return to the point at which it was originally fastened. Adjust and cut, if necessary, the waste ends of the topping, the tinsel and the floss, so that they are snugly tucked into the gap (see pl. 57 (iii)) and continue winding to the shoulder, taking great care to keep the tying-silk under the shank and always in a straight line, otherwise an ugly ridge will appear on the surface of the floss. The reason for setting in the floss and the tinsel on opposite sides of the shank is to ensure an even taper at the points where they are tied. Everything depends on the tension at which the floss-silk is wound and on the width of the successive coils. If the floss is correctly strained on the shank, it will relieve the fine silk of the duty of gripping the tinsel. And if the width of every turn of floss is controlled by the edge of the left thumbnail, the smoothness of the body is assured.

When the silk-body has been completed, the tying-silk is to be coiled round the shoulder of the shank in readiness for the securing of the floss. Take two coils around the *strained* floss and cut the latter off close. Apply weighted pliers and varnish. For those who are not expert, it is, perhaps, better to delay cutting it, until the tinsel has been carried up to the shoulder and you are sure of your work up to that point.

The ribbing-tinsel having been already polished, it ought not to be touched more than can be helped with the fingers ; although, for bodies made entirely of tinsel, more satisfactory results are secured by lapping the tinsel round with the fingers. Closer and tighter turns are achieved thus. The tinsel can afterwards be polished with a narrow strip of chamois leather ; and a thin coating of celluloid varnish helps to prevent tarnishing. Fix to it, therefore, your strongest pair of pliers and take it five times spirally up the body. Remember that a fly of this type is always judged first by the tightness of the coils and by the angle at which they cross the body (see pl. 57 (iv)). The core of oval tinsel is floss and will stand a great deal of tension. Take two turns over the tinsel and endeavour to finish under the shank, but certainly not on top of it. Cut it off, leaving about an eighth of an inch to spare. Make a single whip-knot here. Celluloid-varnish.

Tie in by the tip a blue hackle that has previously been doubled and from which all but a narrow band of fibres has been stripped. Bind it down with four close turns to the right and break off the waste end ; bring the silk back three turns and wind the throat, pressing back the fibres to embrace the shank. The coils of the stem of the feather ought to be taken close up to each other, but on no account be allowed to cross. Two and a half turns give enough fibres to form the throat; often two turns will serve. If any fibres still remain unwound, strip them off the quill with the finger-nails, bind the stem down tightly with three turns under the shank, cut off the waste, bring the silk back to the 'spring' of the throat and clip on weighted hackle-pliers (pl. 57 (iv)). Varnish.

As soon as the varnish on the wing-foundation has dried, spin the throat in the fingers to make it sit well back and lie close to the shank. The fly is then ready for winging.

Lightly smear the silk with liquid wax. Take up a pair of narrow brown mallard strips cut from a right-sided feather; put one exactly on top of the other and bind them down on the far side of the shoulder (see pl. 57 (v)). These strips ought to be no wider than a fifth of an inch, when you are dressing a hook one inch long. The other pair of strips are tied down in the same manner. A very narrow pair of teal strips to form a roof is secured in the same way and the stub ends are trimmed to a taper, to assist in securing a neat head. Celluloid-varnish. Take the silk over the roots of the wings. Whip-finish. Spin the head between finger and thumb. Varnish twice. Clear the eye. When the head is dry, remove any obstinate fibres in the wings that will not sit correctly.

Choose a size in mallard feathers that will allow the pale and waxy roots to be retained in the wing of the fly. This part of the feather is the best point at which to tie down the strip and also is the most attractive part of it.

If a topping is tied in, measure it first of all and neck it slightly where the silk will pass over it. Bind the crest down with one turn and then bend the quill back and include it in the finishing coils. A topping fastened in this manner will never come adrift.

The colour of the head does not matter; some use black varnish; others finish the winging with orange tying-silk and paint it with clear celluloid varnish or with 'Cellire.' *Remember that a small head to a fly is the sign of a master of his craft.*

§ 3. *Miscellaneous hints.*

Dr Pryce-Tannatt's Sally, an illustration of which is included in the plate of modern flies (pl. 50), is dressed somewhat differently from other patterns. He ties in the tying-silk and very narrow tinsel at the shoulder and takes it down to the tag over the naked shank. The tying-silk is included within the coils of tinsel (see pl. 57 (ix)). The tag is then formed by bringing the tinsel back the required number of turns; the silk is left behind to tie in the tail; and the tinsel is wound back to the shoulder very tightly and held by a weighted pair of pliers.

If the tag consists of tinsel and floss-silk, the latter is included with the tying-silk under the coils of the tinsel. The tying-silk is left behind a turn beyond the seating of the tail; the floss goes on the appropriate distance; then three turns of tinsel are taken alone and three more turns back (see pl. 57 (vi)). The floss-silk goes round over the tinsel up to tying-silk, which secures them both.

To return to the first method. The ribbing-tinsel is then tied in; dubbing from the back of a grey squirrel or from a real blue rabbit is spun on the silk (touch the silk lightly with liquid wax before applying the fur) ; and the body is dubbed on top of the gold tinsel. The ribbing is brought up to the shoulder and all is made fast with three tight turns of silk, the waste cut away and the binding well soaked in celluloid varnish. If a body-hackle is employed, a strand of fine gold or silver wire is included in the same stage as the ribbing-tinsel. This is carried for a couple of turns hard up against and behind the ribbing-tinsel ; the tip of a doubled hackle is slipped under it at that point ; the wire is carried under a heavy strain to the shoulder and there held very tightly ; the hackle is wound close behind up to the shoulder and secured. Then twitch off the end of the wire and cut off the waste of the hackle-point, leaving about one-eighth of an inch still projecting.

The winging of this pattern is peculiar for the presence of a rolled wing. A strip is cut from the web of a grey-mottled turkey tail-feather, of a width four times as great as that of the future wing. This should be squared between the finger and thumb ; placed flat on the table, folded in four thicknesses by the aid of a pair of flat-nosed forceps and held, when folded, in a pair of artery-forceps. The wing is then tied in position in the ordinary way ; but care ought to be taken, in order to exert on the silk a pull equally apportioned to both sides and thus avoid the upsetting of the fibres, to which Gribble referred in his notes on Kelson (see p. 282). I think it would sometimes be worth setting it a fresh and unwaxed length of silk, as soon as the foundation has been formed, and afterwards use liquid wax or 'Cellire' to ensure solidity. Dr Pryce-Tannatt has a neat trick of singeing a blunt wing into shape with a lighted cigarette-end ; this most certainly needs judgment !

Pale-yellow or lemon-coloured floss-silk could also be used as an under-colour for dubbing and to reflect light through it.

Use only first-class material and the minimum amount of it ; keep your hands scrupulously clean ; wind silk, floss and tinsel tightly ; form a small head ; and *study minutely the proportions of materials and the positions they ought to occupy on the hook-shank. An artist knows to the width of a turn of silk where to begin a stage and where to finish it.*

§ 4. *A modern system of dressing the salmon-lure.*

It has occurred to me that the salmon-fly of the present day is largely a hook on which have been hung many ideas, some of which have lost any meaning they might once have possessed. Accordingly, I have devoted this section to the building-up of a lure, by starting with a naked hook and dressing on it only those constituents of the orthodox fly that can show they serve some useful purpose. I realize the useful function of a feather may be more obvious to a salmon than to the man who dressed the fly in which the feather figures ; but yet I believe there is more to be gained than lost by following out this principle in designing a pattern of the future.

The use in the section-title of the word 'lure' needs some explanation. I have purposely employed it, because I am rapidly moving back to the old conception of salmon rising to some of the natural trout-flies. In the near future, salmon-fishers will probably carry patterns that are essentially lures and also specific imitations or suggestions of the natural insects to which salmon do at times rise. The whole theory is too complex for a work of this kind ; it calls for a monograph ; but I mention the idea here, so that the employment of the term *lure* may readily be comprehended.

Before us lies a bare hook, upon which tradition bids us wind a foundation of stout silk. Until there is fuller knowledge we can accept it, with the reservation that future experiments may lead to the use of Mr Dunne's white shank or of the polished silver hook. I ought here to record Mr Skues' suggestion that white 'Cellire' is far more practical than white enamel for painting the shank, in that it dries more rapidly and does not require the bronzing of the hook to be removed, before it can be applied. My only experience with a salmon-fly with a white shank was very successful, as it proved far more acceptable than the other five of a batch of six seals' fur-dubbed flies, the shanks of which wore the usual coating of silk, but were in all other respects identical. There will be no difficulty in dressing floss-bodied flies on these shanks.

The late Ernest Crosfield had a way of securing tag, tail and ribbing by means of the floss-silk alone and delayed setting in the tying-silk, until the throat had been reached ; but double-irons are said not to lend themselves to this method. I have copied his method and find it comparatively simple and reasonably strong (see p. 309). Lastly, to secure translucence, if that be advantageous, I see no reason against oiling with paraffin the body-material, which in that case would be composed of cellulite or artificial silk or possibly artificial silk raffia. In this connection, see Mr Dunne's *Sunshine and the Dry Fly* or page 146 of *Trout Fishing from All Angles*. I am sure a translucent fly, built on these lines, would be well worth trying, when fishing with a greased line.

Is the tag of any real practical value ? If it be composed solely of tinsel or thread, it will reflect light upwards through the fibres of the tail, and I doubt very much whether anything is gained by adding a section of floss to the coils of silver thread.

The functions of the tail are at least threefold. If a well-shaped topping has been selected, it will move up and down in the water under the influence of the small local eddies surrounding a fly that is going downstream on a slack line. Its attractiveness in this sense is probably much reduced if the line is held taut, because the fly is obviously inert and robbed of all appearance of life. A topping is filled with light and sparkle ; also it is translucent to the point of giving the impression of extreme tenuity, a feature of the bodies of insects and small fry. The tail clearly has established its right to be retained as a useful constituent, provided a golden pheasant topping is always employed. To a great extent the white-tipped turkey feather shares with the topping the element of attractive translucency.

There is some good to be found in every type of body, except that which is composed exclusively of tinsel. As a reflecting medium silver or gold tinsel is admirable, so is the scale of a fish. But strangely enough the function of scales on a fish is to confer partial invisibility through reflection of the surroundings and of the colour emitted or thrown back by them ; the function of a silver body is to advertise to the fish the arrival in the neighbourhood of a highly desirable prize in the shape of a fly. The whole idea of the tinsel body, although I admit a fly provided with one takes many fish, is to me wrong. The mirror will either cause a form of

Plates 58 & 59

ALN, NORTHUMBERLAND

A TYPICAL PIECE OF THE RIVER. THE PHOTOGRAPH WAS TAKEN IN THE EARLY SPRING WITH THE WATER HIGH.

DEE, BALLATER, ABERDEENSHIRE

THE RIVER IS AT LOW SUMMER LEVEL.

invisibility or will appear blatant, possibly to the extent of scaring a fish. If, however, the metal is applied to the shank in the form of ribbing that is mixed with a brilliant dubbing, the interaction of the two substances is far more likely to be acceptable to salmon.

Veiling, manes (after the manner of the old Erris flies : see pl. 60), joint-hackles and other adornments of the body are redundant, when a good ribbing-hackle or well-picked dubbing is used. The common function of all these is to vibrate along the body, after the manner of the *ciliæ* of a nymph. By far the easiest way of obtaining this valuable effect is by the use of the two materials just mentioned. The other part of the body, namely, the butt, only serves to cover up a possible ugliness at the junction between the tag and the body, a blemish that is normally the result of fearing to take the body-material far enough to the left, lest the set of the topping be disturbed. If the butt is retained in some patterns, it should be composed of wool spun on the tying-silk. Ostrich herl is unsatisfactory from every point of view, not least on account of the extreme care needed to put it on effectively. A neatly-wound black-wool butt looks just as well in the Silver Grey as one of ostrich herl, a metal-bodied pattern that does not come under the ban, because it is ribbed with a badger hackle. This form of hackle is unnecessary in a dubbed body, provided the dubbing be well picked out ; but if the dubbing is mixed with the fibres at the foundation of the wings, they give fire to each other in a manner very attractive to human eyes. For ribbing dubbed bodies always use well-polished flat tinsel of ample width to ensure full reflection of light through the hairs. Oval tinsel of narrow gauge should be reserved for ribbing bodies made of floss-silk.

The throat serves a very useful purpose by throwing light on the forward half of the fly ; but it ought always to be wound on sparingly. Look at the pattern of Black Silk tied by Crosfield himself (see pl. 50). Little more of the fibres have been put in the fly than would result from turning the hackle one and a half times ! In an opaque fly, the hackle (grouse-rump or golden-pheasant breast-feather) is best wound over the wing-foundation ; while the tying-in of a jay feather at this point gives the dresser the best chance of exhibiting its blue-enamel fibres.

Three types of wing suggest themselves to me : the dark and translucent, the light and translucent and the opaque, which will show up moderately dark in the water. The first is the type of wing I should select for a bright sunny day, when the river has begun to fall in and there is a marked rippling of the surface. The opaque fly is best seen against an evening light and in a dark pool or under overhanging boughs that cut off most of the illumination available. The light and translucent pattern is for general use in open pools and under normal lighting. On the other hand, these flies might be classified according to the types of pools for which they prove suitable. But this is a question every man will have to solve for himself, as all rivers have their own problems.

Except in the case of the opaque fly, there is clearly no justification for the presence of under-wings ; and even in that type I believe it pays to use a semi-opaque feather in several thicknesses, rather than insert a strip underneath that will be hidden. The principle insisted on by Kelson and Crosfield, that every individual fibre ought to show in some part of the wing, is absolutely sound and should be upheld in any new system of fly-tying. Brown mallard wings consisting of carefully chosen and adjusted strips in pairs make an ideal opaque wing ; they should be tied low enough partly to embrace the body. Strips from pure white-tipped turkey feathers chosen from the centre of the rump or from the tail-coverts make an effective wing for an opaque fly ; but they should be partly hidden by long narrow sides of widgeon, teal or pintail. The topping finds a place tied in either over as a roof or under as a veiling to the body. The throat should be dressed over the wings, which will secure a *good entry* (see *Trout Fishing* in the Lonsdale Library, p. 233) and will serve as cheeks. For this purpose the best feathers are golden-pheasant breast and blue jay ; endeavour when possible to employ hackles that have suitable natural colours, especially in peaty and acid waters. Jungle cock is a late-comer to the fly-dresser's cabinet. The white enamel on the neck feathers responds instantly with a flash to any variation in the angle at which light falls on it. Yet I am a little doubtful of its value, except as the cheeks of seatrout flies.

Luminous wings are to be constructed by setting in small groups of fibres, separated one from another by small distances, in such a way as will allow the light to pass easily through them ; I am referring to such as golden-pheasant breast-hackle fibres (red and yellow), strands of tail and tippet from Lady Amherst's pheasant, toppings from the golden pheasant and the golden-Amherst cross, strands of dyed swan, dyed turkey, parrot, macaw, and dyed hackle-tips, of which latter there is a wide choice. It requires little ingenuity to make up the two shades of translucent wing, a light and a dark, from this list of materials ; and the result I have found successful and very pleasing from the æsthetic point of view. But the device by means of which Crosfield was able to display all the fibres of the wings I would unhesitatingly adopt. The wing-materials ought to be tied in a series of tiny bunches, so that they spring every one from a different point and do not cover one another. Horns, sides, cheeks, herl or dubbed heads and roofs, except in the case of narrow strips of brown mallard or of teal, are valueless and may safely be discarded.

Other matters exist beyond the question of translucence, viz. the style and proportions of a fly. The body ought to be started well up the shank, the first turn of the tinsel forming the tag being opposite the point of the hook. This keeps the tinsel well out of the way of the teeth of a kelt and encourages a following fish to take the hook well into its mouth. The best effects are always to be obtained by bringing into play the least amount of material needed to produce the effect you desire. This is particularly true of dubbing and throat. The universal temptation is to spin far too much on the silk and to crowd on turns of hackle, when a sparing use of both would serve. Keep the head of a fly slim and yet short.

In the matter of patterns, build with imagination. Picture to yourself the experiences of the past seasons. Have a clear wide-reaching vision or cultivate one ; for only boldness counts and our conceptions of to-day, if properly planned, may be the commonplaces of to-morrow. Go to the river for inspiration and to the forgotten unconsidered sayings of the men of the past. Seek always the truth, the attainment of which is far greater than the winning of an argument ; and only too often this latter aim has been the undoing of what might otherwise have been a great book. There has been a tremendous advance in the last fifteen years in the technique of salmon-fishing ; and corresponding progress is due in fly-tying. Old ideas have given place to new. We understand *flash* a little better to-day and should remember that principle in designing modern patterns of salmon-lures. Translucence is also recognized to be of cardinal importance. Only form remains constant and untouched by progress. By this I mean that the outline and parts of a salmon-fly have hardly altered for a hundred years or so. The body may be shorter, the wings longer and feathers more gaudy : but essentially it is the same.

CHAPTER THIRTY

THE EVOLUTION OF THE SALMON-FLY

§ 1. *Early beginnings.*

THE *Treatyse* very curtly dismisses the idea of fly-fishing for salmon with the words 'it is seldom seen' taken 'wyth a dubbe.' Markham merely records fly-fishing as a mode of taking the salmon; and Barker, though more explicit, leaves a great deal to the imagination of later generations. 'If you angle for him with a flie (which he will rise at like a Trout) the flie must be made of a large hook, which hook must carry six wings, or four at least; there is judgment in making those flyes.' Venables adopts this recipe and adds a little colour to it. 'The *Salmon* taketh the artificial flie very well . . . the Wings very long (two or four) behind one another, with very long tails.' He directs in another passage that different colours shall be put behind every pair of wings; 'also he delights in the most gaudy and Orient colours you can choose.'

With Franck there is a little more definition in the directions for dressing, but a great deal is left out we should be glad to have known. He writes of 'a glittering fly, the body composed of red twisted silk, intermingled with silver, and eye of gold . . . but the wing of my fly was the dapple feather of a teal.' His dubbing-bag contains some interesting ingredients. 'Silks of all kinds, threads, thrums, moccado-ends, and cruels of all sizes, and variety of colours; dogs and bears heir; besides twisted fine threads of gold and silver: with feathers from the capon, partridg, peacock, pheasant, mallard, smith, teal, snite, parrot, heronshaw, paraketta, bittern, hobby, phlimingo, and Indian-flush; but the mockaw, with exception, gives flames to the hackle.' Smith is afterwards spelt smieth and probably is another name for smew; snite equals snipe and Indian-flush is, I imagine, the scarlet ibis. This extensive list goes to show that the idea of the gaudy fly and of the brilliant foreign plumage necessary to achieve that effect is very old. We are, therefore, bound to think the ordinary salmon-fly in the latter half of the seventeenth century is far more showy than the fly actually recorded in angling books.

Chetham makes a little clearer the form of the Horseleech Fly, which is the earliest salmon-fly to receive a name. 'Flies made for the great salmon are better, being made with four wings, than with two only; and with six better than with them of four. And if behind each pair of wings, you place a different colour for the Body of the Fly, it is much better, which argues that he loves to have several Flies on the Hook at once' . . . 'Silver-twist and Gold-twist, are good to use in dubbing the bodies.'

The first man of note in the eighteenth century, as far as fly-dressing is concerned, is Bowlker; he mentions two salmon-flies by name: the King's Fisher, or Peacock Fly, and the Dragon Fly. The names occur in the first edition (1746), but not until the seventh (1826) are the actual recipes for tying them given, although it is moderately-certain the way of dressing them is as old as the names. 'The Dragon Fly, Libella, or Libellula' is a definite attempt to simulate the large dragon-flies that are to be seen at times, skimming close to the surface of the river, and upon which salmon are said to feed.

The King's Fisher is mentioned in the 1789 edition of Brookes. He also alludes to the Horseleech Fly of Chetham and comments on contemporary fly-dressing in the following words: 'Never let the Tail of your Dub-fly descend lower than till you come to the Bend of the Hook, and not into the Bent itself, as some practice.'

The earliest example of a salmon-fly I could find is said to have been dressed in 1775; this was made possible by the courtesy of Messrs Allcock and Company, who lent it to me from their collection. As far as I have been able with the aid of a magnifying-glass to discover the dressing, it runs as follows:

Wings: peacock tail-covert.
Throat: very dark blue-dun cock.
Body: mixed pig's wool and mohair, dyed orange and red, blood-red and also undyed. The body tapering to the shoulder, where it is picked out.
Tail: some strands of wing-material.
Tag: two turns of medium-width silver tinsel, flat.
Head: bronze peacock-herl.

The shape of the hook was worth noticing and also the way in which the dubbing and the throat-fibres are intermingled to give fire to each other. Also it provides the earliest evidence I have found of the metal tag. As a salmon-fly, it is rather small for the period.

The next dressings which show any advance are contained in *The North Country Angler* (1786). A double-winged fly is therein described, which is worth quoting.

Body: peacock herl.
Hackle: black cock, three or four feathers, taken up the body.
Tail: five or six 'strains' of a peacock's feather.
Wings: double, under pair only half size of other and to lie flat on the hook; upper pair of dark mottled drake or turkey tail; dubbing between the wings: bright brown pig's wool.
Head: a little yellow (? pig's wool) mixed with brown.
Eyes: sometimes beads are added for these.
Hook: long-shanked.

The first mention of a vice for holding the hook during the process of dressing is in Taylor (1800); and he gives in detail his method of tying. The wing is put on first, in one slip, the best side towards the shank and the waste ends towards the bend of the hook. The silk is then taken to the tail, where two whisks, projecting an inch and a half are tied in as 'forks.' The hackle was prepared for setting in, by stroking back some fibres at the tip and by cutting away a few on each side of it, to allow the turn of silk to go over without entangling the useful fibres. The dubbing was wound on, so that the body tapered, and the superfluous hair was then nipped away with the finger-nails. The hackle was taken up the body and two turns of it wound at the head. The wings were then lifted over and bound down with three or four turns of silk; a little dubbing was spun on the silk to form a head; and the fly was finished off with 'three noosings between head and wings.' A second fly had a ribbing of silver twist and two dyed ribbing-hackles of different shades. One of the patterns described is extraordinarily like the original Black Dog given by Mackintosh (see under, pl. 60).

Although *The Driffield Angler* was issued in 1808, the information it contains must have dated back a considerable number of years, because Mackintosh says, 'I caught one when angling with the fly at Castle-Menzies in the year 1765, that weighed fifty-four pounds and a half.' He mentioned this fact to call attention to the weight of the fish, not to emphasize the use of a fly, which must have been an ordinary lure at that time. Seven patterns are recorded, Black Dog amongst them, the dressing of which I quote here, so that it can be compared with the photograph of the replica in plate 60.

Black Dog.

Wings: bluish feather from a heron wing intermixt with spotted reddish ones of a turkey's tail.
Body: lead-coloured pig's wool from under the ear; ribbed small gold twist.
Throat and hackle: large black cock's hackle.
Head: dark green mohair spun on dark green silk.

> The winging is done by taking a solid piece of web, tying it on flat and, with the waste ends towards the bend of the hook, bending it back to tie down and divide the feather, after the rest of the fly has been completed.

There is nothing very exotic in any of the plumage employed. Golden pheasant is used in the wing, but whether taken from the tail or from the wing-pinion is not stated. All bodies are dubbed with mohair or hog's down, that is, pig's wool, although dyed seal's fur is in the dubbing-bag. Other items are camel's hair, bear's hair and so forth. 'Remember,' says Mackintosh, 'with all your dubbing to mix bear's hair and hog's wool, which are stiff and not apt to imbibe the water, as the fine fur of most other kinds of dubbing do.' His method of winging is to put on one half of the pair at a time, in the same way that Dee-strip wings were attached, which is a distinct advance in the mechanics of the art. But the greatest step towards the complicated dressings of the second half of the century is exemplified in the wing of *The Golden Fly*: '*golden pheasant, cock pheasant, parrot, peacock harl, mottled turkey-tail and blue jay feather.*'

One of the wood-cuts in Salter's *Angler's Guide* shows three salmon-flies, but none of them is named and all have wings consisting largely of the eye of a peacock's train-feather. The only value in the book, from the salmon-fisher's standpoint, is the following quotation, which is clear evidence how largely the progress of salmon-fly dressing had depended on the ingenuity of the fishermen themselves, because the design of the patterns recommended in various manuals had long been in advance of those given by Bowlker. 'The artificial-flies, sold at the fishing-tackle shops, are principally made from the directions given by Bowlker of Shrewsbury; and, perhaps, have been but little improved during the last century.'

§ 2. *The modern fly is growing.*

The first coloured plate of salmon-flies is to be seen in Bainbridge; one of these, his *gaudy* fly (called by Hansard, Ogmore), has been copied and photographed for the coloured plate opposite page 337. The first three are sombre, especially that which is appropriately called the *Quaker-fly*. The only point of interest lies in the little piece of unravelled yellow floss which is tied in beyond the tail of mallard-fibres and is the prototype of the tag.

'Pliars' to help the dresser in holding the hackle are described for the first time; 'AND, if pliars be wanting, a piece of silk fastened to the end of the feather will answer the purpose.' Also the fastening of the silk at the bend is done with a whip-finish, an illustration of which is given. I have not found an earlier reference to any modern method of making-off. 'This mode of fastening is called the *invisible* knot.'

As for winging, Bainbridge prefers fastening the wing down with the waste ends pointing towards the head of the shank. The hackle is fastened by the point and just to the left of the turns that hold down the wings. The dubbing is then rolled on, a turn or two of hackle is taken above the wings and is then brought down the body to the bend, either direct or through the wings, so as to divide them. The finish is at the bend. It came rather as a shock to me when I read of this method of bending back the wings being used in English flies, as it is a method generally associated with the Shannon, whence it might already have been imported.

The patterns described in the *Fly Fisher's Guide* long remained standard on North-Welsh rivers. In fact, the sober flies were either the ancestors of the old Dee flies still in use among the old salmon-fishermen in the neighbourhood of Llangollen, when I first fished in that river in 1915; or they were copied by Bainbridge from patterns already in vogue on Dee, Conway and Dovey.

Hansard has a little to say about the Welsh flies of his day. 'The flies ordinarily used by the Welsh native angler are very sober in colour, and few in number. The hooks they prefer are also large, and the execution altogether exceedingly coarse.' They affected to despise gaudy flies on the grounds that they have never tried them; but Hansard sagely suggested the real reason why no exotic plumage had found a place in their *répertoire* was the distance of the wild parts of Wales from any seaport, to which foreign skins would be imported. I imagine he had sailors' parrots in mind!

I give his two patterns from the Teifi, near Llandyssil:

Spring fly.
Wings: dark mottled-brown feather of a bittern.
Body: orange silk and worsted with broad gold twist.
Throat: smoky-dun.
(Probably the wing was a pair of whole feathers set back to back; cf. Francis, p. 411.)

Summer fly.
Wings: brown-mottled brown turkey-wing and a few strands of green peacock.
Body: yellow silk, gold twist.
Throat: deep blood-red hackle.

These are sombre enough and both of them survived to the end of the nineteenth century. Bittern, by the way, supplies feathers almost exclusively to Welsh patterns, which is rather strange ; I cannot think of any locality in Wales or in the Marches where these rare birds could have been found in Hansard's day.

Belton merely remarks that ' the Limerick flies are almost always very gaudy, and have silk bodies ; whereas those tied in Dublin are usually of mohair and fur, and much more sober in colour, though infinitely more showy than the Scotch salmon flies.' This gives considerable support to the correctness of the date assigned by Younger (see p. 73) to the introduction of Irish flies into Scotland. The more I read observations of this kind, the more sure I am that Ireland was the cradle of salmon-fly dressing and that all progress in rendering the salmon-fly more showy was made on the banks of Shannon, Erne, Moy, Bann and other great angling-waters.

John Kirkbride must have been a very neat tyer of flies, for his description of how the materials should be put on is most clear and ought to produce very dainty specimens. Although his directions actually concern troutfly dressing, the reader is referred to the same instructions for salmon-flies. There is nothing very novel in method ; the advance in technique can best be seen in the lucidity of his writing. But one pattern from his list of those designed for salmon-fishing is worth quoting here in full.

' In the Tweed, a black turkey feather, tipt with white, kills remarkably well. Let the tail be of yellow mohair, with a tip of silver ; make the body of black mohair, or worsted, rib it with gold-twist, and hackle it with a red-listed feather from the neck of the game-cock ; put on a little orange pig's wool, or mohair at the shoulders ; let the wing be of a black turkey feather, with a small tip of white.' This surely is Toppy, made famous by Scrope (see pp. 75 and 330). In many of the patterns, the cinnamon-turkey tail-feather is employed as the wing-material, from the Border up to the Highlands ; and glead-tail, that is, the tail of the glead, glede or kite, is also in common use. Kirkbride notices the Tay custom of dressing flies with black heron-hackle and making the tail of a tuft of mohair. The latter characteristic lasted a long time on Tayside.

Fancy flies receive special attention and get for the first time a detailed description. Here is one recipe : ' Take a feather from the golden-pheasant's crest, for the tail, which must be tipt with silver ; make the body of black mohair, or worsted, rib it with silver twist, and carry a jay's blue hackle by the side of it, up to the shouders ; for wings, put on, first, a portion of brown-mallard feather, then two or three turns from the blue feather from a jay ; and lastly a feather from the crest of a golden pheasant ; put on two strands of blue-macaw's feather, as horns, with a strand of black ostrich round the head.' The topping is elsewhere spoken of as a covering-feather and kingfisher tail-coverts as ' sides.' Argus pheasant is given a place for the first time. Sometimes the wings are divided by carrying the silk or the hackle through the fibres. The Ballyshannon fly, a pattern full of parrot and other gay plumage, is included in Kirkbride's list and so are the earliest special seatrout-flies.

John Younger lived at Kelso and dressed his salmon-flies in the Tweed manner. He used wool for the tail and cut off strips with a penknife from the quill of turkey-feather to form the wings (see p. 287). For winging such flies as Toppy he took sections of web from the white-tipped feather in the centre of the rump and above the tail of the common turkey. The dun turkey is a ‘fowl precious to a Tweed salmon fisher’; and hardly less useful for dubbing was the fine woolly cow-hair from the flank of a ‘dun-coloured cow or outfield kyloe.’

One of the great fishermen of Younger's day was an amateur named Maule, who dressed his own flies in an unusual fashion. ‘He tore fibres from the wing, equalised their points, pirled them between his thumb and finger till well mixed, then tied them on with their tips laid back, adjusting their roots with knife or scissors; he then folded them, and dividing them equally next by several crossings of the fine thread, tied them solidly into position.’ This ‘pirling’ is worth comparing with the methods of treating wings practised by Rogan and by Crosfield (pp. 335 and 309).

Edward Chitty in the *Fly Fisher's Text Book* has recorded the flies then in use in North Wales. There is little of note, except the Welsh habit of dressing the throat to the right of the wing. Several patterns are included, one of which has been tied for reproduction in plate 60, viz. Evans Fly. The dressing given by Chitty is as follows:

Tag: finest silver wire and yellow floss.
Tail: topping.
Body: mulberry floss, ribbed silver wire.
Hackle: close under wings, a small dark partridge.
Wings: brown mallard; twelve fibres of tippet; three fibres green parroqueet; above these twelve strands of striped turkey.
Throat: a blue-jay hackle, tied over wing.
Head: ostrich herl (? black).
Hook: 15/16ths of an inch long.

This fly he considered the finest pattern of the day for low-water conditions.

§ 3. *Early instructions—Tweed, Shannon and Erne.*

William Blacker was a famous and most successful tyer; but the written instructions he left behind him are most difficult to follow, notwithstanding the presence of some excellent coloured plates.

He describes, first of all, what he calls an easy way of tying salmon-flies, in which the wing is set on first with the roots towards the bend. The wing is then folded back and tied down. The hackle is tied by the stem, the body is formed, the hackle is taken round at the throat and then down the body to the tail, where it is fastened. A tail is tied in and the silk is made off with three running-knots. This is unsound throughout. In the second method the tying begins at the tail and works forward in the ordinary way; it is in the method of putting on the ‘gaudy wing’ that Blacker differs from modern practice. The strips of feather are measured against the half-completed fly and, at the point where it is intended to tie them down, they are pressed hard with the thumbnail, so that the fibres are compressed and remain in the right position for silk to pass over them and bind them to the shank. His composition of a mixed wing is quite different to the wing pictured in the mind when that term is used to-day. A drawing of it has accordingly been included, so that the types of mixed wings can be compared (fig. 338). Blacker's gaudy wing is identical with the characteristic wing of the Erne Butterflies ; but then he was born in, or lived at, Cork. The special points of interest are the use of bittern, which is usually confined to Welsh patterns, the employment of double strips of mallard for the wings, mohair functioning as a tail and often a tag tied above the tail. The hackle is not doubled, but is tied lying on its back.

The flies of the Tweed are very different to-day from those used when William Scrope fished her dubs. And in his book there is nothing concerned with the actual technique of tying them ; but any excuse is good enough to get back to his book and so transport oneself to the days when Kinmont Willie, Meg in her Braws, Meg wi' the Muckle Mouth and the famous Toppy were still the patterns of the hour. Scrope has recorded the dressings of the six favourite patterns with great exactness, so that it has been possible to have a replica of one of them tied by a famous Tweedside fly-dresser and a coloured photograph of it reproduced in plate 60. Here is the list of materials.

Toppy.
Wings : black feather from a turkey's tail, tipped with white.
Head : crimson wool.
Body : black bullock's hair.
End of body : crimson wool.
Tail : yellow wool.
Body-hackle : black cock's hackle.
End of body : small piece of red cock's hackle.

The next book carries us from the Tweed to the Shannon, a river well-known for its great fish and for the brilliant flies used to take them. O'Gorman, who wrote this book, has preserved in its pages the peculiar fly-tying methods of the Limerick dressers. First of all, there is a description of his own process of winging a salmon-fly, throughout the whole of which he dispensed with knots ; he wound the silk in open turns up the body and tucked it between the gut-loop and the end of the shank, while he was engaged in finding the next item to tie in. This is the method adopted by Dr Pryce-Tannatt, when tying flies without a vice and on a tapered-shank hook. The throat, a jay hackle, was wound on by O'Gorman, *after* the main wings were in position, the horns and sides followed and the fastening-off was between the jay and the sides.

The approved Limerick style was slightly different. The wing-materials were first of all selected ; golden-pheasant breast-feathers, blue and green parrot, blue, red and yellow hackle-points and many other bright feathers. The parrot-plumes were paired up and measured, so that they were a little longer than the final length of the wing. They were then made wet by drawing them through the lips. The other feathers and hackle-points were treated in the same way and were laid on top of one another in the position they were to occupy, when tied in. The bundle was then put edgewise on to the top of the shank, near the head and with the waste ends pointing towards the bend of the hook, and was firmly secured with several turns of silk. The tying-silk was carried to the tail, the tag made of silver thread and floss, the topping and some brightly-coloured strands of scarlet ibis and blue macaw. Tinsel, twist and floss were then tied in, the ‘ heckle ’ was fastened by its point (often one side was stripped of its fibres), the tying silk carried to the shoulder and the body formed in the ordinary fashion. O’Gorman said that Limerick tyers were renowned for the beautifully-smooth floss-bodies they wound on the flies ; but they worked badly in mohair and other rough dubbings. The wings were then bent over and whipped down, a jay-hackle wound, the side-feathers and the horns secured, a little mohair or hare’s flax spun on the head and the fastening was put between jay and side-feathers. The method is certainly strong, but produces a very bulky head. An original example of the dressing will be seen in plate 60, opposite page 337.

The Blackwater flies for low water were, on the contrary, very dull and consisted largely of dun turkey and sober-coloured dubbings. In the Grouse Lochaber, the points of the long grouse-hackle were cut off *underneath the shank*, so that they were about a quarter of an inch long at the shoulder and one-eighth at the tail. Boyne flies, he says, are always very bright.

From 1840 onwards, a rivalry was set up on many English and Scottish rivers between the old patterns and the new gaudy invaders from Ireland, the usual result of which was the defeat of the native flies, or at least their partial supersession. On some rivers this revolution did not take place until much later, for Major Hills tells me the Eden he knew and fished in 1889 was still faithful to the old type of flies, descended from those described by Kirkbride (see pp. 328 and 72). And Amos Williams, who died about 1926 in Carrog at the age of eighty-four, fished with the old Dee patterns after he was turned eighty.

Ephemera, in 1847, comments on a metamorphosis of this kind. ‘ Recently somewhat gaudy-bodied flies, with mixed wings, have killed well in the Tweed, frequently better than the old.’ The same writer mentions the long-shanked hooks, on which Spey flies are by tradition tied, the short wings of turkey or of brown mallard and the Spey-cock hackle ; but he omits any reference to the Dee style of winging, described here on page 284 *et seq.*

Ephemera, also, was the first man to set about collecting local patterns, from the ‘ dingy-looking Welsh fly to the silver-laced one of the Shin ’ ; and he must, to a large degree, be held responsible for the vast numbers of dressings, under which the true art of salmon-fishing was buried throughout the latter half of the century.

‘ Salmon were then, like our sage and grey-haired forefathers, of sober tastes and simple habits. . . . They esteemed the speckled feather or white tip of some strutting turkey, the dun plume of the gledd or buzzard, select filchings from the maldrake, teal, or widgeon, along with twitches of home-dyed wool, rough barn-fowl hackles, and the threads of an old service-worn epaulette, better than the combined luxuries of Mexico, the Indies, and New Holland ’ : thus Stoddart in 1853. The new flies he mentions were Childers, Parson, Butcher and Doctor, the Blue Doctor, of course, because the others were derived later from the original pattern. And he says in the same place (page 168), ‘ that, in the time I allude to, the salmon-fishers on Tweedside not only held what is called the Irish fly in absolute ridicule, but actually forbade the use of it on those portions of the river they individually rented.’ In Stoddart’s day the change had been effected, the revolution having its origin near the mouth of the

Tweed. About forty years passed before it had swept over the neighbouring Tyne (see p. 83).

Angler's Companion, from which I have been quoting, contains six excellent reproductions of Tweed salmon-flies in colour and a number of recipes for other waters, including palmer-flies, which are sometimes used on Dee and Don. These he terms 'wingless *hooks*.'

The Welsh manner is given in some detail; the hackle is always long and is wound up the body in a very close spiral; the wings are set on Tweed-wise and consist of strips put on separately, so that 'they project over and by the hook, like the slightly opened blades of a pair of scissors.' The palmer-flies of Wales are dressed on two hooks, the second and shorter hook being whipped, back to back, on top of and half-way down the shank of the longer.

In 1848 was published *Jones' Guide to Norway*; in it were the most superb plates of contemporary salmon-flies that had yet appeared and nothing better or even as good was produced until the plates in Sir Herbert Maxwell's *Fishing at Home and Abroad* (1913). The most astounding thing about these flies was the extraordinary finish with which they were dressed. Every complication known to the most exact tyer was already there, so that it can truly be said there has been little advance in the art (*as far as precision and technique goes*) since the middle of the century.

The characteristics of Erne flies have been recorded in the pages of Newland. The earliest style was the *Butterfly* with a wing-foundation of golden-pheasant tippets set edgewise on top of the shank. Outside these were placed narrow strips of turkey, dyed swan, summer-duck and other birds. Then came the *Parson* group, which were invented on the banks of the Erne in 1836. According to Francis Francis, on the authority of a letter from a local owner, Dr Shiel, the first Parson was used by the Reverend Arthur Meyrick, to whom it was presented by Lord Bolingbroke at Christchurch on the Hampshire Avon; but Newland is most positive about the place and date of the original Parson's birth. This was the original dressing:

Tail, tip, body and hackle: yellow.
Tinsel: gold.
Hackle over wings: blue jay.
Wings: 6 to 8 toppings, reversed.
Head: black ostrich,

and from it I have attempted to tie a specimen, which is represented in plate 60.

The frontispiece of the book is a coloured plate of Erne salmon-flies; and very expensively dressed they must have been. But, in the latter years, there was a change in fashion and the flies of Michael Rogan were supreme at Beleek and at Ballyshannon (see p. 335).

CHAPTER THIRTY-ONE

THE EVOLUTION OF THE SALMON-FLY (*continued*)

§ 1. *The first historian of fly-dressing: and concerning Spey.*

FRANCIS FRANCIS was a man who believed whole-heartedly in a multiplicity of patterns and delighted in trying to find the origins of those used in his day. His book is, therefore, full of quaint bits of fishing-lore of great interest to the fisherman who is also an antiquary.

On the Ayrshire Stinchar and on the Tay there was a double-winged or 'four-in-hand' fly, dressed on a long-shank hook; this style of winging was brought about by the lack of an appropriate feather with a web long enough to span the required distance, from shoulder to bend. An example of Stinchar tying is Murray (pl. 60); and plate 55 shows a double-winged pattern from the same river.

Tag: silver twist.
Tail: yellow pig-wool.
Butt: black ostrich-herl.
Body: darkish-red claret mohair; silver tinsel.
Hackle: darkish-red claret.
Throat: gallina.
Wings: two pairs of strips from speckled grey-dun turkey.
Hook: long-shank, round-bend.

The Aberdeenshire Dee had a style of fly-dressing all its own, the main points of which are detailed by Francis. The hooks employed are long-shanked Limericks. The wings are provided by the tail of some variety of turkey and are tied in at the base before being set on the hook, a method quite different from that in Dr Pryce-Tannatt's excellent book. The idea of this kind of winging is to give free play to the fibres, so that they break up in the extremely-clear water of the Dee and allow light to pass through them. Heron-hackles also are typical of these flies, although they are employed in some of the patterns, traditionally known as Tay flies and Spey flies. Glede wings were very popular on the Dee and no pattern was considered satisfactory, unless it had a throat of teal; but a substitute for the former material had to be discovered when the kite became extinct on Deeside. In plate 55 there is an example of Dunt, a very old Dee fly, and, had space permitted, I would have liked to have included one of the Eagles (*Aigles*).

If you ascend the valley of the Dee and pass out of it by the Devil's Elbow, you will discover yourself in the wide and pine-clad valley of the Spey. Here the anglers had ideas quite different from those obtaining by the Dee. They are, says Francis, 'very curious productions to look at, it being customary to dress them the reverse way of the hackle, and to send the twist or tinsel the opposite way to the hackle.' The characteristics are the Spey-cock hackles, the Berlin-wool bodies, the short brown-mallard wings, which are tied down to embrace the shank, and the teal-throat. For further information page 378 of the third edition of Francis and Knox's *Autumns on the Spey* should be consulted.

Francis devoted several pages to Irish flies. Of the Erris flies, which were dressed for him by the famous Pat Hearns of Ballina, he says, they 'are curious specimens of art, and by no means easy to tie. They are mostly jointed flies, many of them having also manes from the back of each joint, and some with a turn or two of hackle, also at the joint.' See plate 60 for an example of one of these, Owenmore. These flies were in use on Lough Conn and on the Owenmore, Owenduff and Ballycroy rivers about the middle of the last century, the only difference being that the Erris flies (Conn) have manes of mohair and hackles, while the Owenmore patterns have manes and are hackled at the throat alone.

The original Spey flies are described by Knox ; but there is no hint of the way, held to be traditional, of setting the wings, so that they embrace the customary wool-body. He records only patterns native to the valley, noting, however, that in late years the brilliantly-tied patterns have been slowly gaining ground (1872). Here is a list of the flies mentioned. Gold Speal, Silver Speal, Gold Reeach, Silver Reeach, Gold-green Reeach, Silver-green Reeach, Gold-green Fly, Silver-green fly, Green King, Purple King, Black King, Gold Purple Fly, Culdrain Fly, Gold Heron, Black Heron and Carron Fly. Only one of these I am giving in full, namely, Purple King, because a coloured illustration of it appears in plate 1.

> '*Body lake colour, composed of scarlet and purple mixed. Alternate bars of gold and silver. Hackle, grey or red cock, according to fancy. Shoulder-hackle, teal. Wing, mallard.*'

§ 2. *The coming of the gaudy fly to the Eden.*

The metamorphosis here described by Major Hills, who kindly wrote this section for me, is one that has at different times occurred on most rivers and possibly will happen again, when a new type of fly is established.

'I fished the Cumberland Eden fairly frequently from 1889 until 1902, but it is of the closing years of the century that I wish to write, when I witnessed a change over in salmon-flies, from the sober patterns, similar to those described by Scrope, to the brighter flies that replaced them.

'In 1889, the brilliant patterns long adopted on the Tweed, such as the Silver Grey, the Blue and the Silver Doctor, were just beginning to compete on the Eden with the older and more sober dressings. The latter were almost exclusively dressed with a mottled grey turkey wing or with a dun turkey wing, or, in the smaller sizes, with a dark mallard or a dark mixed wing. Very great attention was paid to minute points of dressing and, in particular, a strongly-mottled grey feather was much sought after. Many people in Cumberland kept a strain of grey turkeys especially for the purpose. I had some of these myself, as well as some dun turkeys ; but I doubt whether there are many grey or dun birds left now in the county.

'The period at which the change began I should put at the invention of the Bull Dog by Strong, of Carlisle. But even after it was introduced, the standard pattern in 1889 was still Grey Turkey and to a lesser extent Dun Turkey. A fisherman starting to fish, in either spring or autumn, probably put Grey Turkey over the pool first of all. This fly was dressed with a floss-silk body, violet or blue, sometimes red and more rarely yellow. The wings were of grey turkey with a pair of jungle cock feathers between the strips of turkey, but showing close to the butt. The body and the hackle were the same colour, blue, violet, etc.; the throat was sometimes of gallina, teal or grey mallard; close under the wings and below the shank was a whisp of red wool or a piece of golden-pheasant sword-feather. In ordinary salmon-water that was not too coloured we relied on Grey Turkey.

'In coloured water the Dun Turkey, with a rough wool body and rough mixed wing, covered with two strips of white-tipped dun turkey, was reputed to show better and undoubtedly killed well.

'For less coloured or for clear water, a body of reddish wool fading into yellow and a dun wing without white tips was preferred. Usually fibres of tippet or of light mallard were tied under these strips; but while Grey Turkey was usually tied with a body of silk, Dun Turkey had one of wool. There was also a pattern with a body of silver tinsel, a wing of golden-pheasant tail and a puce-coloured hackle wound only as the throat. Lastly there was a fly with wings from the white-tipped black turkey-tail, a blue floss-silk body ribbed with silver tinsel and a tuft of scarlet pig's wool at the throat and tail. For very low water, patterns winged only with dark mallard were used and the bodies were of wool, preferably claret (see pl. 60).

'In the 'nineties the standard patterns of brighter colour began to oust the native flies, so that by 1902 the change was complete and Grey Turkey, Dun Turkey and the rest of the Eden flies had been superseded.'

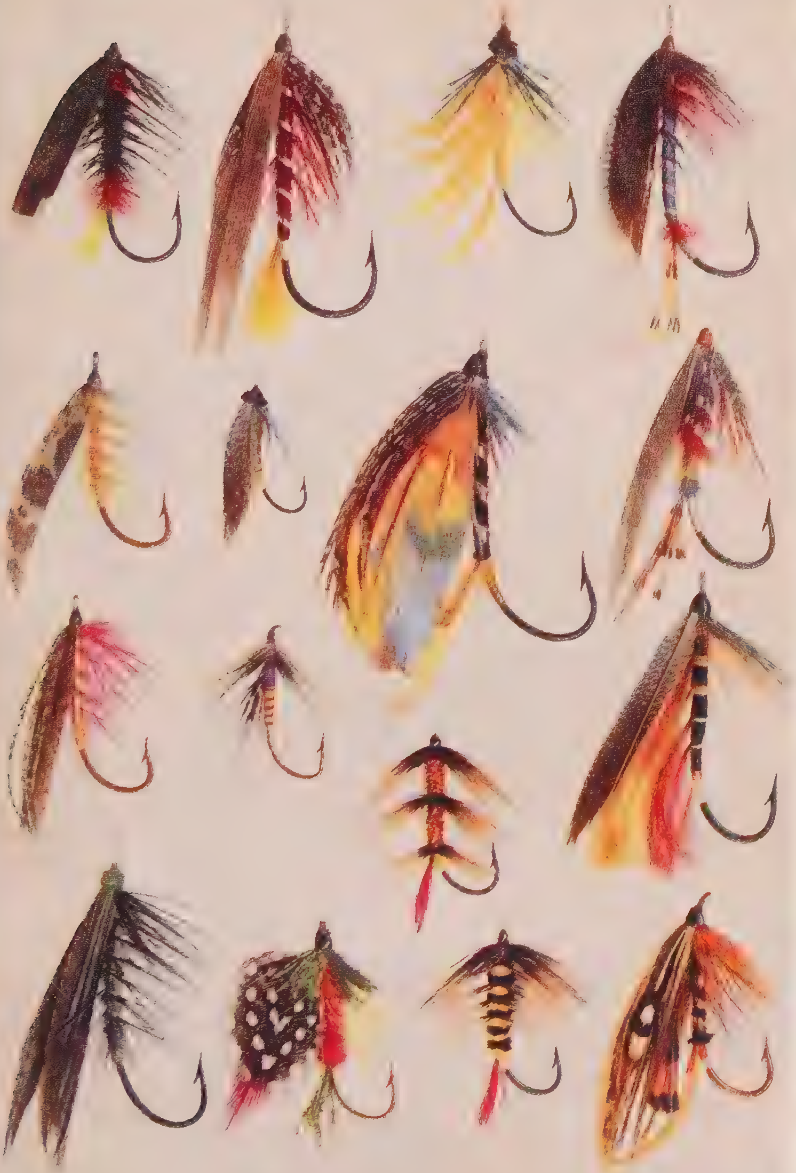
§ 3. *Michael Rogan of Ballyshannon.*

This great professional salmon-fly dresser deserves a short section to himself, because his methods were original and his influence was so extensive; and because Ernest Crosfield, of whom more later, took him as a model for a modern system of salmon-fly tying. Michael Rogan died in 1905 at the age of seventy-two; from the time he was twelve he was engaged in dressing flies and in inventing new methods of treating feathers. His usual practice was to employ, as far as possible, feathers in their natural colours: summer-duck, scarlet ibis, cockatoo, golden pheasant, green parrot, blue and yellow macaw etc. Jay throats figured in most of his patterns. Dr Pryce-Tannatt tells me this practice was due to the bleaching by the peaty-acid water of the Erne of all feathers that had been dyed (see p. 78). If, however, Rogan had to dye a feather, in order to achieve a certain effect, he used lichens, such as crottle, or dyes, such as turmeric, red wood and fustic. These latter were employed to give the most wonderful colours to the pig's wool, seal's fur and other dubbings, for which he was so justly famous.

For an account of some of his own methods of tying Erne flies (see pl. 60), I am indebted to Sir Henry Robertson, Bart., of Palé, Llanderfel,

PLATE 60

Mackintosh's Black Dog (1808). (*Forrest.*)	*Hansard's Summer fly* (1834). (*Forrest.*)	*Hansard's Spring fly.* (*Forrest.*)	*Scrope's Toppy* (1840). (*Forrest.*)
Bainbridge's Ogmore (1816). (*Hardy.*)	*Modern Breton salmon-fly* (1923). (*original*).	*Evans' fly* (*Chilly*) (1841). (*Forrest.*)	*Murray* (*Ayrshire Stinchar*) (1860). (*Forrest.*)
Usk grub. (*Farlow.*)	*Wye grub.* (*Farlow.*)	*Shannon* (*original, ca.* 1870). (*Lent by Forrest.*)	*Parson* (*Erne,* 1836).
Ragan's (*Erne,* 1880). (*James Rogan.*)	*Owenmore* (*Erris,* 1850). (*Forrest.*)	*Dun Turkey* (*Eden,* 1880, *original*). (*Presented by J. W. Hills.*)	*Border Esk pattern* (1880, *original*). (*Presented by John Jackson.*)



FLIES OF THE PAST

Merionethshire, from whose letter I have taken the following quotation. Michael Rogan's 'favourite flies were those used on the Erne and he dressed those with the wings made first of Indian crow, toucan and toppings with a light mixed wing over the top. In making the mixed wing he was most careful about choosing two or three fibres from each feather, separating each fibre and rolling them all together, till he got them absolutely mixed. He made two exactly similar bundles, treated after his own manner, placed them together and whipped them down all in one piece, so that each bundle was more or less on each side of the hook. The result of this was that when played through the water, they opened and shut like a fan and the flies were very lightly dressed. He had a wonderful eye for blending colours. Some of his Claret Bodies and Green Parsons were not unlike bits of jewelry.'

The following is an account of Rogan's method of winging; for this and for the fly that is figured in plate 60 I am very much indebted to James Rogan, son of the renowned Michael, who kindly sent me much information about his father and courteously gave me permission to publish it.

The wing is composed of three to six fibres apiece of golden-pheasant centre tail-feather, tippet, barred teal, green parrot, florican, Canadian wood-duck, amethyst-pheasant tail-feather, cockatoo, bronze mallard, orange cock-of-the-rock and occasionally red ibis. These fibres are placed together with the points of the fibres evened, so that none project beyond any of their fellows, and the butt end of the wing cut square across, the length depending on the size of the fly. Then hold the points of the wing very firmly between the finger and thumb of the left hand and comb the butts with three gauges of comb, starting with the coarsest, until the fibres are well separated. Reverse the wing and comb out the points. In some of Rogan's patterns, the fibres were divided into two bunches and a golden-pheasant topping was placed between them; this meant three ties instead of one. The finishing touches were a narrow scale of bronze mallard on top of the wing as a roof, horns of blue macaw, jungle-cock cheeks and black ostrich-herl head. If there were no toppings in the wing, he put two of them over the tufts of mixed fibres and finished off in the usual manner. For the under-wing he employed tippet, Indian-crow breast-feather, or toucan. The result was a hard-wearing fly, all the fibres of which moved in obedience to the current and also allowed light to pass freely through them.

§ 4. *Of fulness and splendour.*

In May 1884, George Kelson started a series of articles on salmon-fly dressing in the *Fishing Gazette* that appeared in book-form as *The Salmon Fly* (1895). In 1892 Major Hale wrote a book on the same subject, but in view of Kelson's earlier published work, he must be given priority as the first writer to produce detailed instructions on tying salmon-flies and a systematic technique. I have been led to this conclusion after Mr G. H. Nall had given me the opportunity of examining the early notes made by A. H. Gribble upon Kelson's methods, from which the book of 1895 was subsequently constructed.

There is no doubt that Kelson did a great work in making more precise the art of salmon-fly tying and in producing the first system of dressing flies, to which the amateur of his day might turn for accurate instruction.

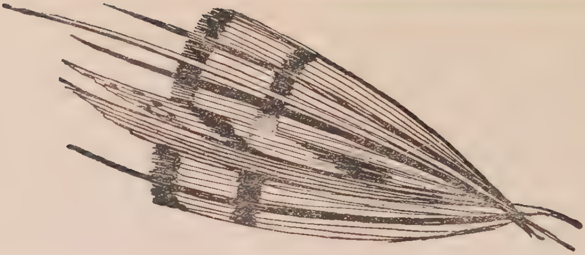


Fig. 154.

Blacker (1855).

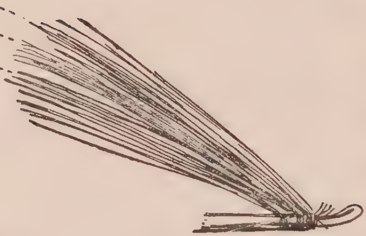
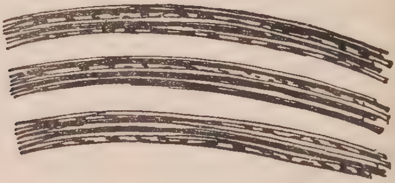


Fig. 155. Rogan (*ca.* 1880).



Hale (1892). Fig. 156.

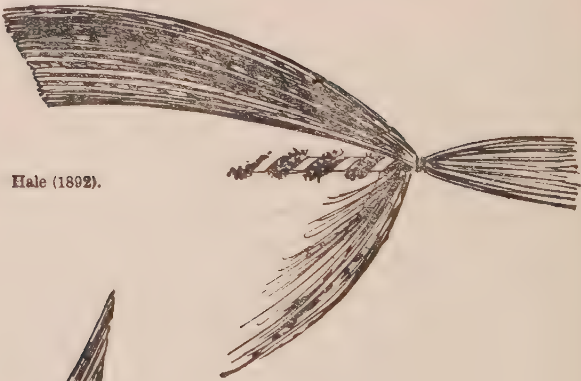


Fig. 157. Hale (1892).

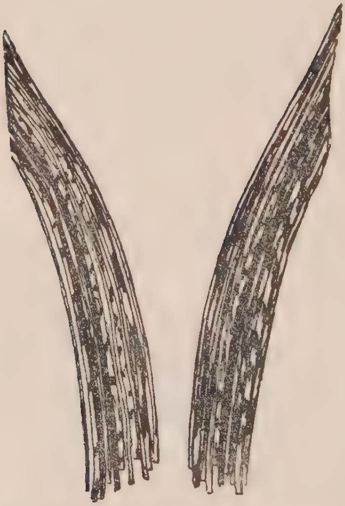
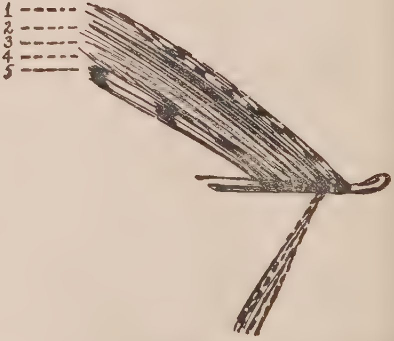


Fig. 158. Kelson (1895).



Crosfield (*ca.* 1910). Fig. 159.

FIVE KINDS OF MIXED WING.

Briefly stated, his other principal contributions to the art are the modern form of mixed wing, the construction of a compound wing, so that every fibre shall show, the apportioning to every turn its special duty and the adoption and discovery of methods to ensure strength in the fly, that are easy to carry out and will produce a fly of regular proportions. Kelson's mixed wing is the fourth to have bestowed on it that name. First there came the Erne-Butterfly or Blacker type of wing. Then comes Rogan's method in which all the fibres are intentionally separated. Next, there is Colonel Hale's arrangement of the fibres, in which separate strands are laid evenly together, not edge to edge, and are taken up in bunches to be tied in. Lastly, there is the mixed wing of the present day, in which all the strands are carefully sized and *married* (see p. 142), until they are as solid as a strip of unbroken web. Kelson was always most particular every fibre in the wing should show and do its share in attracting a fish ; Crosfield adopted the same attitude, but he was not led astray, as Kelson was, into a belief in the essential presence of a strand from this South-American bird or from that particular species from the East Indies. His method exemplifies a fifth type of mixed wing.

The credit for much of the spade-work in reducing Kelson's technique to an orderly arrangement ought to be given to Gribble, but the ideas were undoubtedly Kelson's in the first place. I have found in Gribble's notebook, however, one important point in the tying-down of a wing that was his own invention. He refers to the difficulty in following the method, then extant, of getting the wings to sit evenly on top of the shank, because the pull of the silk drew the fibres over. In consequence of this a fold was created in the far-side wing and the strands were split. Gribble then explains how this may be avoided, by drawing the silk with equal tension on both sides and by taking care each side of the wing shall have exactly the same amount of material (see figs. 118 and 119, which is a copy of the diagram in his notebook).

Another point of difference between Hale and Kelson is in the whipping of silk to form the body-foundation : the former takes it up to the butt, but Kelson leaves a gap, in which the waste ends may be hidden without spoiling the taper of the body.

Since Kelson's day only one book of any note on salmon-fly dressing has been published : Dr Pryce-Tannatt's *How to Dress Salmon Flies* (1914). This contains within its covers all the best practice of the time. The writing is precise and lucid. The flies he himself dressed and still is dressing are extremely beautiful in proportions and finish. But, in conformity with modern practice, he is dressing the body much shorter ; some reasons for the change are set out on pages 320 and 322. I will not describe the book, nor attempt an analysis of it. Anyone who is thinking of taking up the delightful hobby of salmon-fly dressing will certainly consult and probably buy a copy. It is the best and most modern text-book on the subject ; but there is an urgent need for a revised edition or for another book from the same facile pen.

§ 5. *The laying-aside of plumes.*

Two fishermen remain to be considered : Mr Chaytor and the late Ernest Crosfield, who modelled his flies on those of the great Michael Rogan.

Crosfield was the greatest salmon-fly tyer of his day. Unfortunately he left no record of his methods or aims, so that I have had to collect what information his friends can give me.

The central tenet of his creed was that every feather had a purpose and should fulfil it. He believed in dressing the wing in a manner that would compel the different fibres to show. Also he believed in economy of material, in translucency and in persuading a fish to come so far up the fly, that the hook should get a good hold. Thus the bodies of his patterns were begun at a point opposite the barb, all materials were used sparingly, the bodies were slim and at most two turns of hackle were taken at the throat. In addition to these aids to delicacy, he tied the materials forming the wing in series, that is, instead of all the fibres springing from one spot, they were set in tiny groups, separated one from another by the thickness of a turn or two of silk. The throat was often wound in the middle of the wing.

Crosfield sometimes dressed a fly, up to the stage when the throat has to be tied in, without tying-silk ; he used the floss body-material as a very efficient substitute (see p. 309). Examples of flies actually tied by him and by Dr Pryce-Tannatt have been used in the plate illustrating modern patterns (pl. 50) and should be taken as models of the best work of to-day. Compressed directions for tying his famous Black Silk are given on page 309 ; these are extracted from 'Notes on Tying Salmon Flies,' by 'Poacher' (E. M. Crosfield), in *The Salmon and Trout Magazine*, no. 31 (1923).

Mr Chaytor has taken a very practical view of the matter and has discarded from the salmon-fly all parts for the presence of which he could find no reason. He has reduced his patterns to a body of oval silver or of dubbing ribbed with flat tinsel, throat and a pair of strip-wings. Other adornments are omitted and probably without much detriment to the attractiveness of the fly. His patterns are described on page 240 and two examples of them are shown in plate 50.

A full discussion of what I believe will be the flies of the future and the methods of dressing them will be found on page 319 *et seq.*

§ 6. *Résumé.*

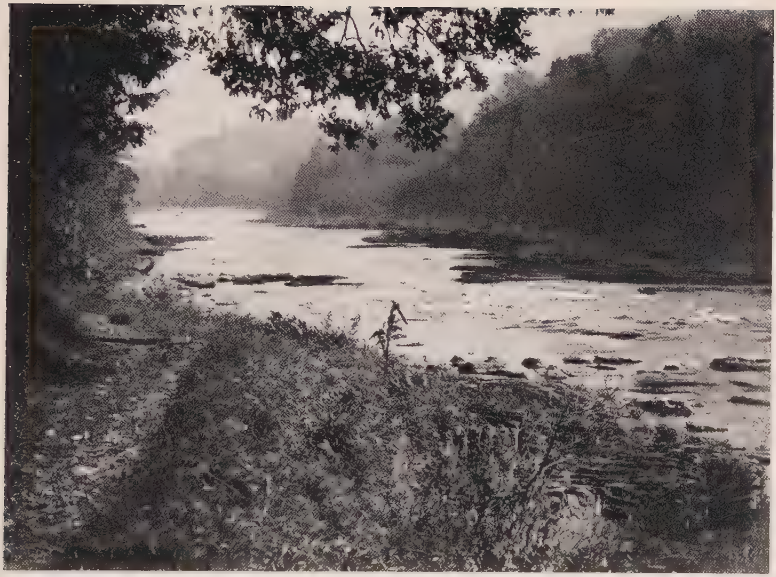
1495. The history has been traced of the salmon-fly from the trout-flies of the Treatise to the salmon-flies of Franck and Chetham, *1690*, whose patterns consisted of a body ribbed with tinsel and two or three pairs of wings.

1750. Next there entered a period when salmon-fishers followed the theory of Imitation, the days of Libellula and King's Peacock fly ; but the fly emerged from the eighteenth century far more of a lure than an imitation and the influence of the Irish Gaudy fly began to make itself felt in some districts.

1815. The patterns of Bainbridge are of both schools.

At widely-different dates through the nineteenth century struggles took place now on this river, now on that, between the local flies and the new Irish patterns or patterns built with equal gaudiness. In every instance, the brilliantly-decorated flies won.

1847. There followed a period of development, in which the technique of the art was raised very high and culminated in the patterns of *Jones'*



Plates 61 & 62

NYTH, A TRIBUTARY OF THE WYE, HEREFORDSHIRE

WYE, HEREFORDSHIRE: RED BANK IN SUMMER

Guide to Norway. In the next fifty years little was done except in the creation of numberless patterns and the improvement in minor details by men like Michael Rogan.

1895. Then came Kelson and with him the standardizing of technique in his day and the establishment of the brilliantly-dressed opaque fly. This régime lasted for twenty years or so, until the revolt broke out.

1910. Mr Chaytor returned to a primitive type and secured simplicity by the employment of the bare essentials ; Ernest Crosfield achieved a reform by an economy of material, intentional translucence and slimness of dressing.

It would need a rash man to prophesy about the next advance. It depends largely upon the extent to which greased-line fishing brings us back to the consideration of the salmon and the natural insect.

CHAPTER THIRTY-TWO

FISHING THE MINNOW AND THE SPOON

THE subject of spinning for salmon is so wide, that a special monograph would be needed to deal adequately with it; but here I am restricted for space and must therefore treat of it in condensed form under the three natural heads of tackle, casting and practice by the waterside.

§ 1. *Of tackle needed in heavy spinning: the rod.*

Although there may be rivers, such as those of Norway, where powerful rods are needed to control a hard-fighting fish, I can confidently recommend a beginner to buy a spinning-rod somewhat more limber than the one he is usually offered. The power of a rod over a fish lies as much in pliancy as in resistance, because a top will yield to a pull only at the expense of the fish and recover line as soon as the effort of the latter has been expended. The result is that a fish always has a strain placed on it, which in theory ought never to drop below a certain minimum; actually this does not occur. But the use of a reasonably-pliant rod helps the angler to put something approaching closely enough to this form of unrelenting tension; and it is far preferable to the stiff and powerful rod that will not respond to sudden strains. By using the lissome rod, you will have more confidence in the ability of the trace, the line and the hooks to hold a salmon of any size in any water. There will be a give and take that will save the weakest part of the tackle. The heavy rod, on the contrary, has no sensitiveness to variations in tension, destroys the angler's 'touch' and is apt to treat a fish as though it were a piece of meat that has to be brought in!

The length of a spinning-rod depends on circumstances, which often means the state of the banks, if the river's edge is deep water and casting is to be carried out without entering the water. When the bushes and trees along the side of the river have been allowed to grow, until the water is thickly enclosed, a short rod is almost a necessity; but, wherever it is practicable, use a rod not shorter than 11 feet, which will throw a bait, with the smallest expenditure of effort, as far as you will need. It is of no moment at all of what material the rod is constructed, split-bamboo or greenheart; although my own preference is for a spliced rod of greenheart, the Grant-Vibration type. A spliced rod gives a most pleasant action and there is little trouble in securing the single joint with insulating-tape.

If the additional cost is of no consequence, the best form of ring is that which is fitted with an agate lining. The ordinary type has a porcelain lining held by a metal ring and seating; it is apt to get loose and rattle. The best kind of porcelain ring is unfortunately unobtainable to-day, namely, the *saddle* pattern, an illustration of which is given in figure 8. A description of the mode of fixing these rings is on page 372. As a rule, they did not break very readily, but a watch has to be kept on rings of all makes for cracks that will, if allowed, do great damage to the enamel-surface of the line.

§ 2. *The reel.*

Spinning-reels are based on two main mechanical principles: the revolving drum and the stationary. Of the two I prefer the former, that is the Nottingham type, the control of which is either effected by the tip of the finger or of the thumb, or with a movable shoe acting on a small brake-drum. The reel with a stationary spool, from which line is pulled off in the manner of cotton being lifted from a reel in the direction of its main axis, has a great disadvantage in the twist that is bound to be imparted as the line is drawn off. If recovery of the line is effected by moving the spool at right angles to its original position and then causing it to rotate by turning a handle fitted to the plate of the drum, the twist remains in the line and kinks and loops will soon appear. There is far less objection to the mechanical arrangement that replaces the line on the spool in the same plane in which it was removed.

Some reels are suitable for use in heavy spinning; others are constructed to give the fisherman very delicate control of the rotation of the spool; in another type the outgiving and recovery of line is controlled by an ingenious mechanical device. There is ample choice of both kinds, to the making of which I leave the angler with the remark, that the improved Nottingham reel with finger-control demands of its user far more skill in manipulation, but in the end yields the greater amount of pleasure.

§ 3. *Spinning-lines.*

The ultra-light reels have lines specially designed for them, lines that take up little room, cause but a small amount of friction, offer a resistance to the water hardly worth mentioning and fit snugly, so that great lengths can be housed in a small space.

The heavy line used on the other types of reel is usually a fully-dressed level trout-line of small diameter; the alternative is an undressed Nottingham line, that is a solid silk plait into which some surface dressing, such as Mucilin or Cerolene, has been allowed to sink. The dressing in the other line is a complete impregnation with oil of all the fibres of the silk, which is covered afterwards with enamel and is precisely like that habitually used today for forelines in fly-fishing.

If a reel, three and three-quarter or four inches in diameter, is used, the length of foreline needed will be about sixty yards; this will be followed by enough silk, flax, or hemp backing to fill the reel and the requirements of the river. Probably an additional sixty yards will be about the final length you will decide is right. Wipe the backing with grease from time to time, in order to leave a modicum of dressing that will resist the effect of any drops of water trickling through from the outer coils of line.

A spinning-line receives far more friction than does one used for fly-fishing and needs careful attention after work is over for the day. Draw off the reel and allow to dry all the line that has been used; when it is dry, look over the surface for any signs of wear, such as knuckles where the silk has been bruised through contact with a rock or with a snag; give a fair pull on the end of the line and, if any break occurs, continue testing it, until you are satisfied the unsound or weak part has been removed; always look at the extreme point of the line where the main friction is bound to fall; and see that the line is properly reeled up and will run out evenly to its full length.

The enamel-surface requires attention every other time a line is used. Stretch forty or forty-five yards of the line between two posts: smear it thinly with whatever grease you habitually employ for the purpose; and polish it until it is dry and shiny. This will keep the line in good order and supple; and will ensure every coil, as you cast out the bait, leaving the spool separately and without sticking. The failure of a line to leave the spool evenly is frequently the cause of an over-run. If this happens, disentangle the line by humouring it; but, should this treatment fail, there is only one remedy—unbounded patience! Your task will be lightened, if the spool can be removed from the main body of the reel.

Clearing the rings of the grit that adheres to the grease, left on them by the motion to and fro of the line, goes a long way towards preserving the surface of a line. Another source of wear is the rubbing of the line with string, during the attempts to float off the bait from the snag where it is held fast by means of an 'otter' (see p. 375). The strain of pulling and trying to release a spinning-line curtails to an appreciable extent its useful life. In fact there is so much wear on it that the undressed kind is safer to employ than the enamelled, because the slightest sign of danger shows at once and can then be dealt with; but weakness in a dressed line is usually hidden, until a severe tug demonstrates its presence—and then it is too late. The additional strength of a dressed line in its prime is in itself a snare for the unwary. But, on the other hand, this type of line runs smoothly off the spool and is far less likely to be the cause of an over-run.

Fasten the line to the ring of the top swivel on the trace by means of a tiller-hitch, a figure-of-eight knot, or by a long loop whipped in its end, which is passed through the ring and taken over the far end of the trace and pulled back again (see p. 135). Attach the foreline to the backing by interlocking loops.

§ 4. *Of traces.*

The trace is a length of wire or of gut, which is conveniently employed to join the bait to the line and to give accommodation to a number of swivels. These latter absorb the spin of the bait that otherwise would be stored up by the line, until kinks form and the line gets badly snarled. Here is the usual manner of constructing a trace. Take three feet of Killin wire, or of 'tiger' wire, a compound twisted kind; fasten one end to the top ring of the swivel in the head of the bait (see figs. 32 and 33); twist the other end round one ring of a double swivel, or cut the wire two feet from the bait and insert a single swivel there and a single swivel at the top end. Artificial gut is to be treated in a similar manner; but, as the knots slip easily, the ends of the gut will have to be whipped. Natural-gut strands can also be joined to give the same lengths; these also will be fastened to the swivel-rings by one of the knots described on page 132.

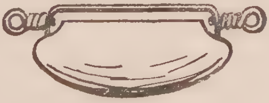
Mr Chaytor (p. 98) recommends piano-wire for making up traces. Banjo-wire is also well adapted for this purpose, because knots can safely be tied in it without fear of it snapping when under strain, a great disadvantage in Killin and other hard-tempered wires. Let the bait in travelling forward put a kink in the wire and the latter will certainly snap, when tension is applied; and the bait will continue its journey across and into the river alone. Banjo-wire is normally on sale in short lengths of about twenty inches, two lengths of which will be needed to make up a trace. It is, however, quite easy to get the same wire in greater lengths or in a coil; but if you want the finest gauge for clear-water spinning, you will have to employ that known as Killin wire.

The methods of fastening wire to the ring of a swivel are shown and described in figures 32 and 33; and drawings of the modern types of swivel are included.

After a wire-trace has been in use, it will retain within its swivels a little water. I therefore dry mine before the fire and place it among discs of oil-soaked felt, which I keep in an old cast-damper; this effectually prevents oxidization in the delicate moving parts of the swivel. Three-in-One oil is ideal for the job.

§ 5. *Concerning weights.*

There are three methods of causing a bait to sink to the required depth. Use a bait that is of itself heavy enough to need no additional weight; place an amount of lead within the bait; or attach a lead of appropriate weight half-way up the trace or at its head. The effects of the two last on the behaviour of the bait are quite different. A light bait, held down by a lead at a distance of a yard or so, possesses a far larger degree of independence than one in which all the weight is centred in itself. The



THE GEEN LEAD. Fig. 160.

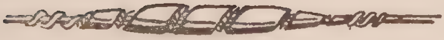


Fig. 161. THE JARDINE LEAD.

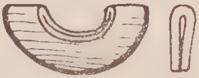
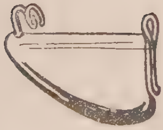
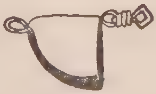


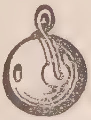
Fig. 162. THE SIMPLEX LEAD.



THE 'SLIP-ON' LEAD.



THE INTERCEPTOR LEAD.



Figs. 163 to 165. THE HILLMAN LEAD.

former swims more or less horizontally ; whereas the heavy bait travels with its nose well up and, the hooks at its tail being, therefore, the lowest part of the tackle, it is very likely to run foul of the many snags that force themselves upon the unlucky angler's attention. A light bait will swim a little higher than the lead and often enable the spinner to escape the punishment of spinning too slowly with, at most, the minor loss of a *pendent* lead.

The question of a heavy bait, such as a solid Devon minnow, we will leave until the next section and consider the weighting of a natural bait, minnow, loach or sprat. The most satisfactory means is to slip into the mouth a little lead wire (17 B.W.G.) and close it by sewing up the lips with a piece of fine copper wire. Another way is to have a spindle of lead moulded on the central spear that forms the backbone of many modern flights. Examples of some of these are figured in this chapter (figs. 175 and 176).

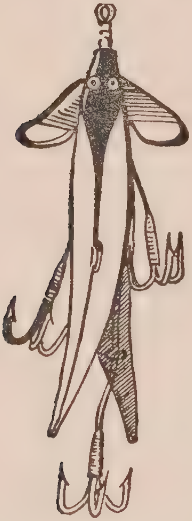
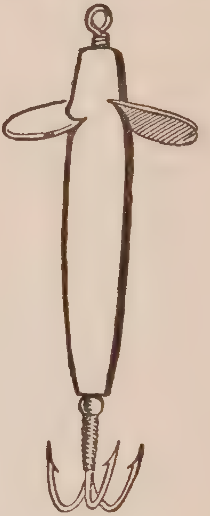


Fig. 166. WAGTAIL BAIT.



A DEVON MINNOW. **Fig. 167.**

The most practical weight, designed to be attached to the trace, is the anti-kink type, such as the Hillman lead and others that may be seen on referring to figures 160 and 162–165. There is also the Jardine lead, fitted with pig-tails within the spirals of which the trace is threaded, but, unfortunately, if wire is thus treated it acquires a permanent bend. There is also the *Fishing-Gazette* lead in which the weight is thrown well below the main axis of the line. The last two are expressly constructed to prevent the turning of the bait to be communicated to the line ; the former to make the swivels do their job.

Where the weight shall be placed, depends largely upon the type of water to be fished. If the river is bounded by high banks, from the tops or sides of which you are going to fish, you will probably concentrate the weight at a point well up the trace. This will help the bait to swim on a level keel; but at the same time will introduce into the act of casting a danger of the bait curling over, getting behind the lead and being entangled with the line itself. It is far more difficult to cast with accuracy, when the lead is attached some way up the trace.

If there were no local conditions to modify my views, I should unhesitatingly choose the heavy minnow or spoon and only place enough lead at the head of the trace to ensure the swivel functioning; the weight would take the form of a Hillman lead or a small pierced bullet tied by copper wire to the ring of the top swivel nearest the line.

§ 6. *Of artificial baits.*

There are three main divisions of these: minnows, phantoms and imitations of other fish, such as gudgeon, loach etc.; spoons and wobblers; and wagtails (fig. 166), leather-baits, sand-eel tubes and many other ingenious inventions, all of which at one time and another come up for approval before a much-bewildered salmon!

The typical minnow is the heavy Devon (fig. 167), which consists of a shell of metal revolving around a central axis, on which the hooks and head-swivel are fastened. This can, for convenience, be called the flight. At the head of the shell are brazed two fins that cause the minnow to rotate round the flight. The best form of flight is that which bears a single treble at the tail and, just above it, a bead to keep the shell from slipping down on to the hooks; or one of the cage-stop trebles shown in plate 25, which have been designed for this very purpose. Another way of keeping the shell in place is tying a second treble above the first, so that the lower edge of the minnow rides on the inside of the three bends; this has always appeared to me a waste of a treble and to possess no advantage whatever over the single treble and bead. Old patterns of Devon minnows are made with slots in the flanks of the shell, through which side hooks project in quite unnecessary and offensive exuberance. Reject this make of minnow; it is a curse to fish and man.

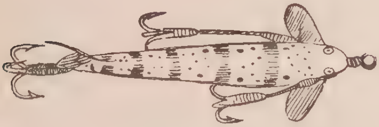


Fig. 168. A PHANTOM MINNOW.

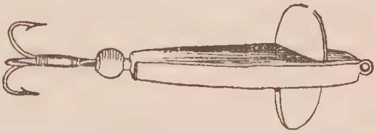


Fig. 169. A REFLEX MINNOW.

Devon minnows are made in many different colours and patterns: gold, silver, brass, gold and brown, silver and blue, red (for glacier water), gudgeon-coloured and many others. I usually fish with gudgeon Devons in high clear water and with gold and brown or blue and ivory, when the river is coloured. That is my own preference and nothing more.

Phantoms are minnows made of silk-fabric and are fitted with metal fins soldered to a metal cap. Through the body there is a length or two of stout treble gut, which carries the treble at the tail and joins it to the swivel at the head. In most examples, the gut is permanently fixed and cannot be replaced when it is old, without taking the phantom to pieces. A modern design has a hollow tube through the body, so that the phantom can be exchanged for a new one or the flight replaced as easily as though it were a Devon. The finest colour for a phantom is the blue and ivory shade for which the well-known firm of William Brown is still famous. There is very little weight in a minnow of this type ; a little should, therefore, be introduced in the shape of lead wire through a tiny hole cut at some convenient point in the silk. Or a lead can be attached to the head of the trace and the minnow allowed to play as it will. For a phantom I think the latter is the better plan ; but it makes casting the bait distinctly more difficult.

There is a wide choice of other patterns of heavy minnows : the Griffiths anti-kink minnow, the fins of which can very simply be given any pitch the angler desires, the reflex-type with flat sides (fig. 169) ; and several makes of india-rubber minnows, which can be bent to impart a wobble to an artificial like that of a natural minnow, when it is held in a curve by the hooks and is drawn through the water.

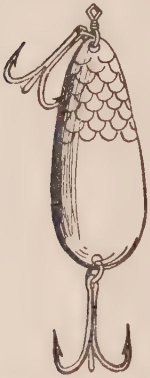


Fig. 170.
KIDNEY
SPOON

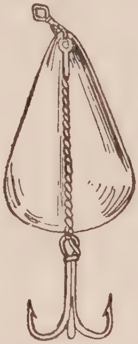


Fig. 171.
HOG-BACKED
SPOON.

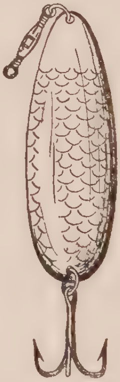


Fig. 172.
NORWEGIAN
SPOON.

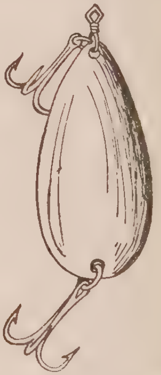
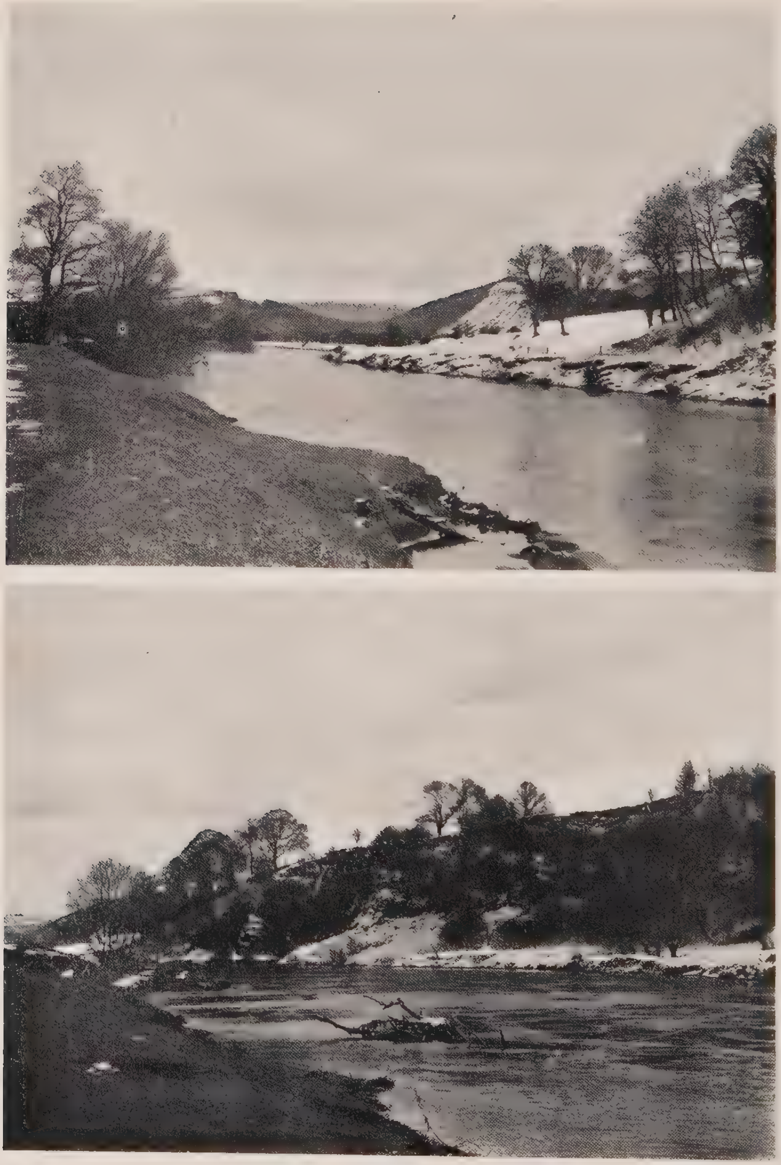


Fig. 173.
THE 'SPECIAL'
SPOON.

The spoon relies for its power of attracting fish upon ' flash,' which is caused by the uncertain vacillating movements of its silver and copper faces. It is essentially a heavy-water bait, although I have taken fish with a one-and-a-quarter-inch spoon at a time when the river was dead-low. Spoons are made in many shapes, hog-backed, kidney, Colorado and others (figs. 170 to 173) ; I have always found the first the best of all the patterns. Most of them require a little lead on the trace to keep them low and to make them function well. There is also a variety of fly-spoons lightly constructed to admit of their being cast and fished with a fly-rod.

Lastly, there are wagtails, leather-baits, sand-eel tubes and other devices, only the first of which I can with confidence recommend ; the others I have not proved. In all of these baits, especially at the head of spoons, split rings are apt to creep in. My advice is shun this attachment, if there is an alternative bait on offer which is differently constructed. Rust plays the devil with split rings and does so basely and with secrecy.



Plates 63 & 64

WYE, HEREFORDSHIRE, IN WINTER

TOP : RED BANK. BOTTOM : BLACK HOLE.

See that the spoons you buy have the hooks and swivels fastened by solid rings brazed in place. I would rather tie a treble to a spoon with turns of copper wire than make even a temporary job of it with split rings.

§ 7. *Concerning natural baits.*

Here is a list of the fish most commonly employed by the spinner as baits: minnow, loach, colly or collagh, sprat, bleak, gudgeon, eel, sand-eel and, in the bad old days, parr (the tail of which was used in much the same fashion as is the spoon). Minnow is by far the most popular and next to it comes sprat dyed golden yellow. Of the eel only the tail is used and this needs careful preparation beforehand (see p. 351).

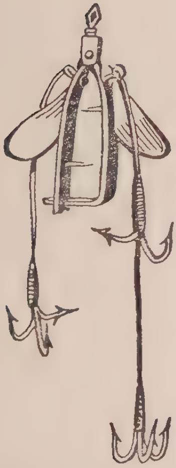


Fig. 174.
CROCODILE FLIGHT FOR LIVE-BAIT.

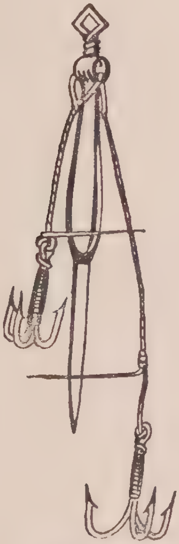


Fig. 175.
THE 'WOBBLER.'

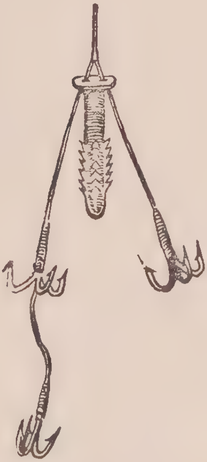


Fig. 176.
ARIEL TACKLE FOR NATURAL MINNOW.

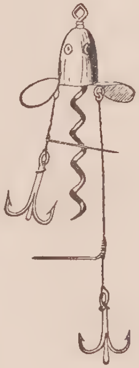


Fig. 177.
THE 'CORKSCREW' FLIGHT FOR SAND EELS.

Small dace, also, are occasionally spun in front of salmon and in flood-time prove a most successful bait. This fish is a common bait early in the season on the large Norwegian rivers, such as the Namsen. Any of the small fish used in pike-fishing are taken well, when they are spun, and have been known to be snapped up by salmon, even when the former are being employed as live bait for pike.

The natural bait is either placed upon a central spear and the hooks of the flight, known as the *arming*, are grouped round it and then secured; or it is held in position entirely by the hooks. If the flight is fitted with a tiny propeller, the body of the bait will lie quite straight; but, if the curve of the bait is relied on to produce a wobbling spin, the hooks must be placed, so that they hold it rigidly in a shape that will cause this movement. If a natural bait is mounted on a flexible flight and afterwards bent, in order to make it wobble or spin, it should be examined after a few runs to see whether it is functioning properly. And a curve, slightly greater than is usual, is needed to make it rotate efficiently in slack water. I think two small trebles are adequate and that more are a nuisance and are detrimental to sport. One hook of the back-treble ought to be straight; this will help in keeping the arming in position (see fig. 174). Of the best-known tackles, I have had most experience of the Dee flight, the Ariel, the crocodile, the Archer and the single-hook and like them all, except the single-hook (see figs. 174–176).

A celluloid propeller that can be attached to the top of the trace has just come on the market; its function is to make the bait spin as though fins were present on the flight itself. If you adopt this method, which has the undoubted advantage of removing some distance from the bait an unsightly attachment, remember to leave out or jam the swivel at the top of the flight and place a small anti-kink lead at the head of the trace. This will make the double swivel at that point function properly. For spinning a sand-eel there is, of course, a special flight fitted with a corkscrew (see fig. 177).

Whatever natural bait you employ, be sure it is tidily put on the tackle and, after a short period of spinning, has no stray ends. Renew it as soon as it shows the slightest sign of falling to pieces, no matter how much trouble this entails. Experienced anglers will bear witness to the value of this precaution; for whatever advantage a natural bait may have over an artificial one, that advantage passes to the latter, if the minnow or sprat is allowed to 'go in rags.'

As soon as fishing is over for the day, remove from the flight the bait that is still mounted there. Dry and clean thoroughly the whole of it; look over the gut, rustless gimp, wire, or whatever material the spine of the flight is made of; see the hooks shall have keen points in readiness for the next day; and replace any hook the points of which have been damaged by a rock and cannot successfully be touched up. Then hang the flights and traces from nails in the wall and strain them with some sea-leads or put the traces between oiled felts (see p. 345).

§ 8. *How to obtain and preserve minnows.*

Many of the preserved minnows bought in jars are discoloured or bleached and are very different from those freshly caught, which are very attractive in their bright silver and deep olive. Minnows that have been preserved, in such a way that they have retained their colours, are tougher than those newly killed. And there is an advantage, during the period when minnows are spawning and are unfit to use, in being able to rely on having baits that will last.

The easiest way of catching minnows is with a fine-mesh net; it is also the best, because you can catch a large quantity and then choose exactly those you want to keep. But considerable amusement can be got out of fishing for them with a small barbless hook and a tiny piece of red worm; or with a number of these hooks set along the gut in the manner of a Stewart tackle (see fig. 189). First of all, collect a crowd of minnows by stirring up the mud with a stick, which is sure to arouse the curiosity of all the minnows in the neighbourhood and bring them post-haste to the spot in the fear of missing something. If a bit of worm is placed in the path of the shoal, one of the minnows is sure to think it has found the cause of the disturbance and try to suck it off the hook. This is your opportunity: do not let it slip by. When you are baiting the hook, be sure to employ only a morsel of worm, see there are no ragged ends and push the point of the hook just through the flesh. Minnows can remove a piece of worm from a carelessly-baited hook with great dexterity and without the slightest danger to themselves.

The best method of preserving minnows is that mentioned by Mr Wanless. The fish are placed alive in a two per cent aqueous solution of formaldehyde, which kills them, and are left there for forty-eight hours or so; they are then gently scraped to remove the film adhering to them and placed in a mixture of sugar and water, one to four by weight. The vessel that contains the solution is left open to the air for a few days, until the smell of formalin has disappeared; the baits are then washed and replaced in a permanent preserving-solution of sugar and water in the same proportions. The killing of the fish in the formalin is an essential of his method. If, later, a scum should form on the surface of the solution, take out the minnows, wash them and put them into fresh solution.

§ 9. *How to make an eel-tail.*

Catch a small eel and skin it. The easiest way of doing the latter is to cut the skin with a sharp knife around the neck, above one fin and below the other. Cover the head with common rock salt and take a handful in the palm of the left hand; this will assist you in gripping the eel firmly. Hold the head in the left hand and, holding the fin that is above the cut with the right, draw the skin off the body, until all but two inches of the tip of the tail has been flayed. Cut the skin off and remove *all* the backbone. Insert a large round-bend hook whipped to a loop of stout artificial gut and wrap a little lead wire round the gut. Tie the tail round the neck, about one half of an inch from the edge, so that the hook or the snell is fastened securely to the skin. Then turn back the edge and sew it down with silk to the outer surface of the skin (fig. 178). The size of the eel-tail depends upon the use to which it is to be put. One that is two or two and a half inches in length is about the right length for salmon-fishing. A twelve- or fifteen-inch eel will provide a tail for a bait of this size. An eel-tail should be kept in salt; or it can be preserved in methylated spirits and rubbed with salt when it is wanted, which will restore its colour. The chief difficulty in keeping this bait is to prevent the hook from rusting.

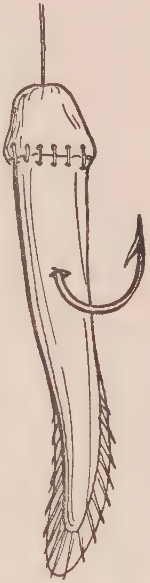


Fig. 178.

AN EEL-TAIL ABOUT THE SIZE SUITABLE FOR SALMON-FISHING.

§ 10. *The general principles of throwing a bait.*

The accuracy of a cast depends upon how aim is taken at the spot where the bait is intended to enter the water. The best way is to turn the body towards that place before beginning the back-swing and then to turn the trunk of the body a little, as the rod is carried back. The rod-point should be held steady, until the pull of the bait on the tip of the rod tells you that it is time to start the forward stroke. This latter is a sweep of the rod that ends with a marked finish to it ; and the path of the rod-tip is lower in the centre than at the beginning and at the end. The bait thus travels slightly upwards, as it goes out over the river, and drops more lightly than it would, were it thrown directly at the water. The most important point of the foregoing is undoubtedly the waiting for the bait to swing right back and give a tug to the rod-tip ; only by doing this can you hope to throw the bait, especially a light one, with accuracy and dexterity. The range of the throw depends largely on the amount of kick put into the finish of the rod, as it propels the bait forward, and on the delicacy of the control of the drum. If a fixed-drum pattern of reel is being employed, the distance to which the bait will go depends entirely on the final flick and on the angle at which the bait begins its journey.

Whatever reel you are casting with, the same difficulty will be encountered in releasing the line at the exact moment, so that the bait shall go in the direction desired ; this will come with practice, after many upstream throws when the opposite was intended and after sundry minor accidents, such as catching yourself in the back and getting hitched up in the bushes and other objects, which at that time will seem to you without number !

If you decide to master one of the reels that are best described as improved Nottingham reels, the most difficult part is to acquire the delicate control that is actuated by the pressure of the finger on the rim of the spool. Once this has been learnt, I shall be surprised if anyone would be satisfied with any other type of reel. Automatic control, except in throwing a very light bait, will surely hold no further interest for them !

Single-handed and double-handed casting are much alike, because the upper is throughout the swing in the latter the controlling hand. The rhythm is similar in both.

As a general rule the bait ought to be thrown right across and far beyond the fish, so that it may be working correctly by the time it reaches them. If you notice the bait is about to travel too far and may fall amongst the bushes on the opposite bank, increase very slightly and evenly the pressure on the rim and the bait will drop before the danger is reached. This simple control is an advantage possessed by the Nottingham reel over the fixed-drum type. Finally, the bait should, after it has entered the water, either be allowed to swim round with the stream or be reeled slowly in ; this will depend on its weight, the depth and speed of the river and the character of the river-bed and also upon the amount of knowledge of the last-named you possess.

On the whole, I think it is better practice to keep the rod-point steady and not to attempt to work the bait through water of moderate pace. The slight addition in attractiveness of the bait, if there is any, is, in my opinion, outweighed by the loss of rod-control at the moment a fish takes with a snatch. But the question is a very open one.

In enclosed places, where there is little room for a full swing, the overhead cast will have to be substituted for the side-throw, or line drawn off the reel, held in coils in the hand and released at the precise moment when the bait has acquired enough impetus to go forward. All kinds of tricks can be devised to make possible the casting of a bait under the most unfavourable conditions. The fixed-drum type of reel is better here than the Nottingham reel, as it needs less room for the back-swing.

The foregoing are merely outlines of the practice of bait-casting, which are applicable to all sorts of reels. There are on the market today so many varieties of these, that space could not be found in a book of this type for detailed instructions on the way to set and to handle them.

Spinning on broad rivers like Tay, or the lower and middle reaches of Wye, is very different from fishing on narrow, or tree-beset, or moorland streams, such as parts of Conway, the Welsh Dee, or Dart, where extremely accurate throwing is demanded under the severe penalty of losing tackle.

§ 11. *Of the way to fish a spinning-bait for salmon.*

The best method of learning to spin is to treat the bait as if it were a fly, making due allowance for the fact that a minnow searches the river vertically as well as near the surface and that a knowledge of depths counts very heavily. The systematic raking of the river with a minnow, without expending any thought on what is probably happening beneath the surface, leads nowhere. A fish is taken now and then. More often the event of the day is a lost minnow or one miraculously recovered by a feat of salvage. This is not fishing.

Try rather to search all the lies of a pool from every angle ; spin fast and slow alternatively and give a salmon every opportunity and encouragement to come to your bait. This is intelligent fishing by which you will learn a great deal about salmon and increase your chances of catching them.

If you have passed a favourite lie and have had no touch from a salmon you know or think is there, turn round and deliver a few casts upstream, so that the bait sinks a little lower in the water than before. This often attracts a salmon that may quite easily have failed to observe the minnow, as it was swept rapidly past by the stream. The speed at which you can safely spin upstream depends on the depth and speed of the water and the weight of the bait. One cast over a known taking-area is not enough ; try it from different directions and in various manners.

I have found spinning more productive in stickles and runs than in the dubs of large pools and slightly more so than in the flats, the long shallow stretches of water separating pool from pool. But the flats are essentially high-water areas, in which tired travelling fish find easy water for resting. This is not the experience of others, who have in the solid waters of the Wye and Severn found the minnow a most successful lure. It depends largely upon how deep you dare to sink the bait. And in high dirty water during the spring, the minnow ought to be forced as low as possible, as the cold water tends to keep salmon down on the bottom, so that they will not come up to the surface as readily as they will later on, when the water has cleared and the air is warmer.

Mr Chaytor (p. 97) writes of successful minnowing during low water at dusk ; this I have tried with both natural and artificial bait and have only taken trout ; but he is too good a fisherman to make mistakes of that kind. In fact, his chapter on spinning contains the best and most modern instruction on the art that has yet been published.

In time of thick flood, the minnow comes into its own on account of its weight, size and power of advertising itself by its flash. But its sphere is even then limited to the nearby zone of quieter water in which fish rest ; but it pays to throw well beyond to allow the minnow to settle down before entering the part you are fishing. Otherwise to cast a minnow or a spoon all over a racing river is a waste of time and of your chances. It pays to concentrate strictly on the water close to the side on which you are fishing, especially if you are on the inside of a curve ; to hang the minnow below you, when there is current for it to sway in and to reel the minnow or spoon in by short jerks that make the bait work in a most attractive manner. How far it is good practice to make a habit of working a minnow, as it crosses a pool, behave as though it were a dying or a sick fish, I cannot say ; some first-rate spinning-men believe strongly in it. But if a salmon will not come to a minnow spun before it in the normal way, it is clearly worth while trying the other. Very closely allied with this idea is the question of the superiority of true-spin minnows over those which wobble as they proceed in the water. The natural minnow curled on its flight or held in a curve by its arming is a good example of the latter. For spinning when there is ‘ visibility ’ in the water, I always prefer the wobbling bait ; but that is merely my experience. Everyone ought to find things out for himself. Also I think a natural bait is far more deadly on low water than is an artificial one ; and yet it is a great nuisance to have to carry a minnow-bottle all day. But a man who habitually fishes with translucent quill-minnows will probably say they serve quite as well as a real minnow. Shades of opinion on this, as on most angling matters, are unnumbered.

In flood-time, always continue winding in right up to the edge of the water. You can never be sure how late one of those very solid shallows that appear so stealthily from the depths of a brown flood will leave the moment of taking the bait. And keep your eyes fixed on the part of the water you know the minnow is traversing. How much of real value is lost to the angler, who is negligent in doing this, it would be hard to say. Personally, I think it is half the art of spinning. The swirl on the surface that indicates the salmon that has missed or turned away at the last moment, the torpedo-wave of the fish that is following cautiously a short distance behind the bait, or the actual glimpse of a following fish one is sometimes privileged to observe : what are these but the essence of a fisherman’s true knowledge and how many spinning-men are ignorant of their purport !

I will confine any discrimination between fly-fishing and the use of baits to expressing my preference for fly at all times, if it is practical. Even on high flood, I use a large fly in the lay-byes and easy-running tails of the pools and take the risk of being broken by a fish getting into the main stream, a thing I could probably prevent, nine times out of ten, If it were using a wire trace and a powerful spinning-rod. On the other hand, I like spinning very much. Yet there is no doubt in the world that Mr Wood’s greased-line fishing has extended the sphere of the fly at both ends, spate and drought. How much anglers will take advantage of this remains to be seen ; but spinning will stay as a method of taking salmon under conditions, when fly-fishing is considered to hold out little chance of success.

It is a question who is the more unpopular : the fly-only man who tries to impose his views on keen spinning-men, or the unregenerate bait-fisher who splashes his way through water sacred to those who only fish fly and thereby feel a distinct moral superiority! These controversies ought to be shunned; there is room and occasion for both methods.

The size of minnow is an important matter that you will learn by experience, unless a friendly fisherman, who knows the river well, gives you that valuable information. If I were going to fish a strange river for the first time, found it in flood and decided to use minnow, I should put on one the shell of which measured about one and three-quarter inches. That size has always served me well on rivers of average size, but in very deep and wide rivers a larger minnow would probably be recommended by local anglers.

Hold the rod well out over the water and while the bait is coming round. Many anglers lower the rod-point, so that the latter may be forced down to the level where the fish are lying. The main objection to this is the production of a dangerously taut line. When the bait is below you, lift the point slightly and try to prevent the line and rod being in a straight line. I am sure the fish that takes a minnow well into its mouth has generally hooked itself by the time the tug is felt by the angler. Striking violently will not assist the hooks to catch hold and will only drive home hooks that are favourably placed and probably are already half-way home. If, however, a gentle pull is felt or rather sensed, a withholding of the line, so to speak, a touch, as though a leaf had brushed against the trace, do not hesitate a moment. Lift the rod evenly and tighten; salmon that take this way are thinking of letting go, before they have yet laid hold. I have assumed in this paragraph that the minnow or spoon is armed with not more than two trebles, the points of which are of the keenest. Many a fish has been allowed to go free, because the angler has not observed the flash, as a salmon turned away with minnow in its mouth or swerved from a minnow it would have taken, had the bait been presented a second time and in a different manner. These salmon have seized the bait and have gone forward with it, which is equivalent to their having taken it on a slack line.

In conclusion, spin with your mind always on the game, learn the river-bed and where the snags are situated that are likely to interfere. *Watch the water for 'flash' and 'humping.'* Try a salmon in all manner of ways, but, as O'Gorman said, 'don't dog him.'

§ 12. *Episodical and thoughts on hooking fish.*

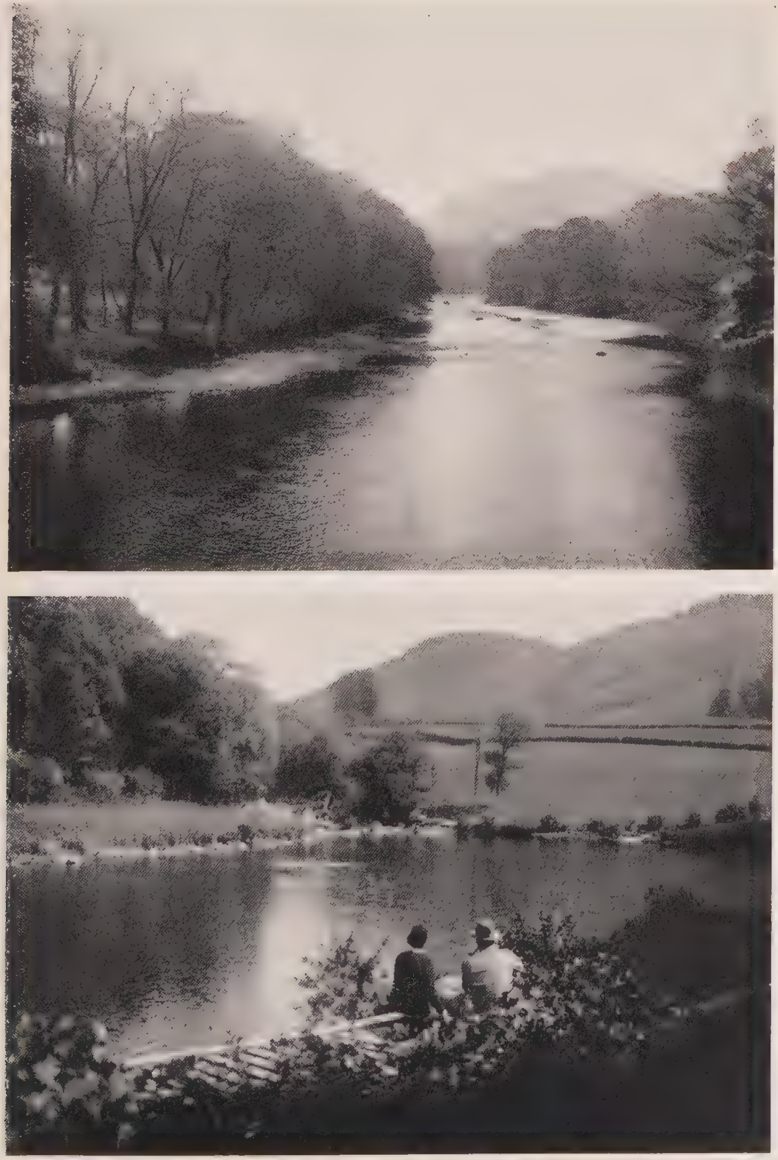
Here is a short account of what happened to me one brilliant autumn day of browns and reds against a deep blue sky, when the salmon were still running up through dropping water that earlier in the season would have held them up. The pool was the finest of the whole stretch, overhung with trees in such a way the water was shaded from the direct glare of the sun and running with a purl down the centre where there were depth and numerous holding-places. I had seen a fish enter the gates of the pool and show again near the middle, opposite the seat; but very careful covering of the usual taking-area had produced no answer, though the fly was Turkey Jackson, winged with a strip from the tail of the proudest dun turkey that ever lorded it in Syria or on the Great Hungarian plains. On to the spinning-rod went a gudgeon-minnow, one and three-quarter inches long, but without success; and I was thinking the fish must, after all, have gone right through, when it occurred to me how deadly in this place a hanging minnow might be. I waded as far out as I could, threw the minnow over, held the rod at right angles across the stream, so that the bait hung below the point and well in the current, and there allowed it to rotate as it liked. Three minutes passed and then I was conscious of something furtively pulling from a direction, somewhat different from that in which I knew the minnow had been hanging. I lifted the rod and found a salmon on and, as it proved after I had gaffed it, well hooked. When all was over, the angler who had all this time been sitting on the seat watching me fish, said, 'I wondered when you were going to realize you had a fish on. It came up quietly, took the minnow, swam up and across stream and then turned down. I should think you must have waited twenty seconds before you tightened.'

I have had a somewhat similar experience with a spoon. A slight over-run had occurred and I had foolishly allowed the spoon and the slack line to drift down in the current, while I was clearing the reel of the snarled line. The spoon had hung below me for five minutes or so, before I saw the line coming upstream towards me! As it passed me, I attempted to tighten on the fish that was evidently retrieving the spoon for me! Had I waited until the fish had swum upstream of where I was standing and had switched the line downstream, it is likely the hooks would have gone home.

It is surprising how often the minnow is taken hard by a salmon without the hooks obtaining a firm hold. I do not think I have ever read any attempt to account for the high percentage of losses and touches in spinning, or to suggest any sound remedy. But spinning is, in many respects, very similar to fly-fishing and some hint may, possibly, be derived from that branch of the art.

A minnow is normally spun on a taut line. A salmon will, therefore, have to take it very accurately and fully. The angle at which a minnow is usually thrown is such as to present the bait more or less endwise on to the fish; this is apt to induce fish to follow, which, by the analogy of Mr Wood's experience in greased-line fishing, leads to what are called by us *short rises*. Also, the minnow is going upstream and endwise-on to the fish for a great deal of the latter half of the journey. This is, from the angler's viewpoint, the least favourable way to present it; and there is no wonder spinning-men so often feel the sudden snatch of a salmon that has rung the bell, so to speak, and is already round the corner, before it can be answered.

How can this be altered and the bait properly presented? It is not very easy to say. The minnow can be thrown across the stream and gently guided back, so that it crosses more or less broadside-on to the fish. This is often done to-day; but it is usually rather costly in tackle, if a heavy minnow is employed. Unfortunately, a bait cannot be fished on a slack line; it would cease to function through loss of the pressure of the water on fin, curve, or hollow; it would sink dangerously near the bottom and get out of the fisherman's control. The employment of a light minnow and a lead fixed to the trace will not help, because it would make it almost impossible to control the bait. The lead would, undoubtedly, defeat the whole manœuvre; the weight must, therefore, be in the bait itself. But some trick is clearly needed to give a salmon time



Plates 65 & 66

WELSH SALMON RIVERS

TOP : A FLAT ON THE WELSH DEE.

BOTTOM : THE JUNCTION POOL ON THE CONWAY WITH THE LLEDR. IN THE MIDDLE DISTANCE A SALMON HAS JUST JUMPED.

to turn, before the angler feels a snatch, tightens up and pulls the bait out of its open mouth. I can only suggest that the minnow be thrown almost straight across and led back again, the point of the rod kept well up and on the downstream side, so that there is a little slack in the air, and the point dropped towards the bank, as soon as a fish is felt. If the point were dropped in the direction of the fish, too much time would probably be given and the salmon would promptly get rid of the hard bait before the angler had been able to pull home the hooks.

There is in this little beyond suggestion. The value of a slack line was demonstrated to me, when the salmon took the hanging minnow, as described above ; the surrender of a little line at the moment of the take has been shown to be sound practice in prawn-fishing ; but the effect in ordinary spinning of dropping the rod to give a little loose line to a fish that has seized the bait is something I have yet to learn.

All these precautions, however, are useless, if the hook-points are not of the keenest. The ordinary hooks used in spinning the prawn, where a similar problem exists, are often too rank. Partridge trebles (see pl. 25) are far better adapted to quick hooking ; and something like that short-pointed, short-barbed type ought to be employed. If the hooks are really sharp and the bait has been brought across the stream at a broad angle, salmon that take are almost sure to be hooked firmly. It is the salmon that follows and takes, or takes endwise-on, that is pricked. Avoid it, if you can.

CHAPTER THIRTY-THREE

FISHING WITH WORM AND PRAWN

§ 1. *Of prawning-methods.*

THE earliest reference to the use of the prawn as a bait is in Richard Brookes' *The Art of Angling* (1766). Since then there have been many modifications and improvements in the way of presenting it to salmon. Francis Francis describes the way to use it and so does Traherne in the Badminton Library, where he mentions the use of a float to keep the bait off the ground as having just been invented by the native anglers of the Erne. Mr Eric Parker tells me the same practice still exists on the Irish Lee ; and it is also employed on the Boyne.

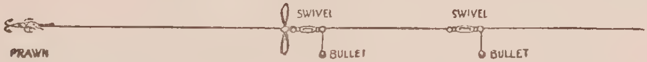
Whether salmon on seeing a prawn in fresh-water recognize it as part of their staple or of their occasional food it is hard to say ; but they eagerly take it boiled, as freely, I imagine, as in its natural state. That they prefer a prawn to which the *ova* are still adhering is certain ; and in putting the bait on the flight care should be taken to ensure these being left undisturbed on the belly of the prawn. The whiskers, the legs and the scales ought to be most tenderly treated and the treble hooks, if they form part of the flight, should be hidden among the two first-named parts ; but the two flukes of the tail I break off, as I find they impede me in my task of mounting the bait When the prawn is to be spun, the head ought to look towards the tail-hook, so that the water-pressure shall not lift and strip the scaly covering of the body. Most prawn-fishers prevent this from happening by binding the body with fine copper wire. Mr Chaytor has an ingenious method (see fig. 183). He takes a ten-inch length of red silk ; to one end he ties a small eyed hook and fastens the other to the lower ring of the swivel at the head of the flight. As soon as the prawn is in position, the silk is taken round the entire length of the body and back again, until all is firm, when the hook is pushed gently into some secure hold. In this way, all tying and untying of the silk with its inevitable soiling of the fingers is dispensed with. A piece of fine gut (natural or artificial) dyed red would serve equally well. Red ink is a good dye for the latter, but a little vinegar added to it acts as a mordant and makes the colour more vivid.

These considerations, however, are outside the main theme : the methods of fishing the prawn. Of this there are three : spinning, trotting, sink-and-draw. In addition to these, there is a way of dropping the prawn vertically into a deep hole, which is the haunt of salmon, and slowly drawing it up and lowering it again at the same speed. Also the bait can be thrown out, in the same manner as in spinning the prawn, and allowed to come round before being wound up. In this instance, the bait is not caused to revolve, but is allowed to swim round slowly with the current and unencumbered, except by the smallest of leads.

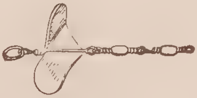
Spinning is better adapted to the broad evenly-running stretches of a river. Trotting was invented to overcome certain difficulties in the river, namely, where the lies of the fish were too far distant for the angler to cast his bait, without it being badly damaged in the process; or in rather ponderous, solid and slowly-moving water, wherein other methods had failed. Sink-and-draw is the only practical way of fishing the throat of a pool (close into the rough), the neck, where the river is constricted and pours over a sort of step in its bed, in very deep 'pots,' in places where shoal water drops down into a deep and also in holes and backwaters, where salmon often rest during the midday heat. These conditions are ideal for the employment of the sink-and-draw method of prawn-fishing.

§ 2. *Of tackle in fishing the prawn.*

The simplest form is that which consists of a single hook; this should be tapered shank, round-bent and of the finest quality. The point must be very keen and the barb free of the rankness all too commonly found in such hooks as cheap Dublin Limericks. The hook is whipped very neatly to a length of gut in the other end of which a loop has been tied. The methods of fixing the prawn on the tackle are impaling it on the hook, by passing the point through the body, and threading it on the shank by the aid of a baiting-needle, a far better way. The single-hook tackle is far from satisfactory, as nine times out of ten it spoils the bait. I have attached the prawn to the single hook by means of copper wire alone and have found it quite firm enough for the 'pot' fishing in the Dart; but I prefer to use a tackle with a single treble or back-to-back double at the head and a double on the back or underneath, guarding the *ova*.



A PRAWN TACKLE AND TRACE. Fig. 179.



CELLULOID PROPELLER USED IN FIG. 179. Fig. 179a.

Many flights have been constructed for spinning the prawn and one method is to mount the prawn on an ordinary tackle that gives no kink to the prawn and bears no fins (fig. 179) and put a celluloid propeller below the first swivel, about eighteen to twenty-four inches from the bait (the head-swivel must in this instance be omitted). Figures 180 to 182 illustrate flights in use today and give a better idea of their special functions than could a verbal description.

One of the main principles in designing a tackle is to use the minimum number of hook-points consistent with adequate ability to hook and hold. The more points there are to pull in, the greater must be the power delivered to the rod, if penetration of the hook or hooks is to be effected. Another is to hide the points and yet not to blind them, so that when the salmon closes its mouth on the bait, no part of the latter shall guard the points and prevent them entering the flesh of the fish. If weight is attached to the tackle, pains should be taken to see it shows as little as possible ; it had better take the form of coils of lead-wire wrapped closely and evenly round the central wire or gut of the flight. The best method of attaching lead-wire is to place a needle alongside the gut and wrap the lead round both ; withdraw the needle and tighten the lead by rolling it. The lead is then painted a coral-red to match the *ova* and the hooks are often similarly disguised. Light-red sealing-wax dissolved in methylated spirits, or in spirits of wine, will produce a paint that is easily made and is quite good enough for the purpose. A great deal of this theory of camouflage is, I am sure, founded on sand ! The prawn and the painted hooks may appear to us pink and exactly the same shade of pink ; but the pink of the prawn is, to a large extent, viewed by a salmon as a translucent pigment ; whereas the pink of the hook merely reflects. Probably silver hooks would serve equally well.

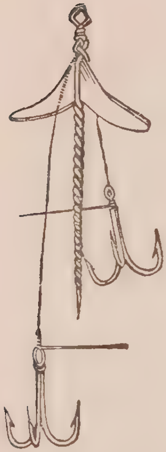


Fig. 180.
AN 'ESK' PRAWN FLIGHT WITH TRANSPARENT FANS.

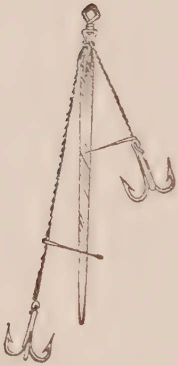


Fig. 181.
A PRAWN TACKLE.

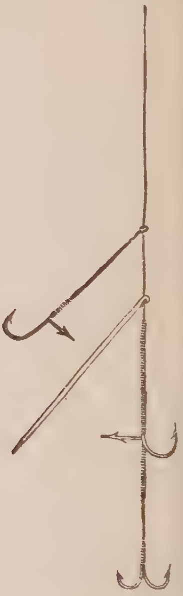
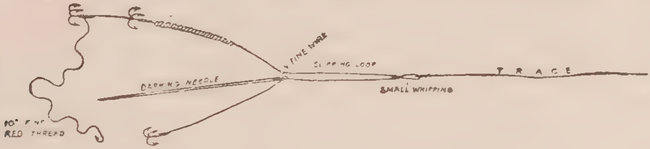


Fig. 182.
A PRAWN TACKLE.

Here is one method of forestalling a salmon in its attempts to take a bite out of the back or to suck the eggs from under the belly, two frequent tricks it plays on the unsuspecting fisherman and it usually gets away unscathed. A needle, sliding on a loop, to hold the prawn out straight ; a lightly-leaded flight, consisting of a single hook at the belly and a back-to-back double or a treble at the head ; a single or back-to-back double on the angle of the back of the bait (fig. 182). The single hook should have whipped at its back a piece of stout copper wire, which will pierce the body and keep the hook projecting in the right direction ; the wire, however, should not be so long that the end of it has to be turned round the prawn ; this breaks the bait. The main and the subsidiary flights are kept in place with a binding of copper wire or of gut (dyed a pale shade of red) to which the small eyed hook, recommended by Mr Chaytor, has been fastened. The belly-hook is to be set in the vertical plane and the double at the head in the horizontal. If a treble is employed, the type chosen ought to be the Partridge, as this requires little force to ensure full penetration of the points.

It always pays to look after prawning tackle, to remove the bait at the end of the day and clean the flight scrupulously; so that the metal parts shall not rust. Look at the points of the hooks and, if that rock which at one time threatened to steal all from you, has dulled or turned the point of a hook, sharpen the point again in readiness for the morrow. The centre rib of the flight is usually made of gut or of rustless gimp ; both of these materials require a close watch kept on them for signs of wear.



MR CHAYTOR'S PRAWN TACKLE. **Fig. 183.**

A rod, reel and line suitable for spinning will serve equally well for prawning. The trace is usually of some form of strong single wire, such as Killin wire, or of gut. The former has the disadvantage of snapping in the air, while travelling forward during the act of casting, if there should form in it the smallest kink or bight ; twisted double Killin wire is far less likely to snap in this way. Prawn-tackles are easily lost through the intervention of snags situated on the river-bed ; artificial gut here fills the bill on account of its cheapness and also because leads can be attached without causing the damage to it that is done by them to wire. Another type of wire is the banjo wire mentioned on page 345.

The usual length of a trace for prawning is about three feet ; a swivel is usually fitted at the head of the flight and a double swivel is fastened at the top of the gut or wire. If the prawn is destined for spinning and an independent propeller is to be employed to impart torque to the bait, a fan of celluloid is placed up the trace, so that it controls the lower ring or the lower swivel and thus causes the bait to rotate. This fan may be bought or constructed out of sheet celluloid ·05 to ·035 of an inch thick and should be fixed on the trace on the side of a lead, nearest to the bait. The shape and method of attachment are shown in figures 179a and 179.

If you are going in for trotting the prawn, you will need a small float, preferably of the *Fishing Gazette* type and a little larger than that employed as a pilot-float in livebait fishing for pike, but buoyant enough to support bait and lead ; and to make things more comfortable the line ought to be greased heavily enough to float. In Ireland, where this method of fishing the prawn is widely employed, the float generally consists of a large spherical cork, about the size of a billiard-ball. This enables the angler to control the depth at which the bait swims and to lead it, so that it passes over likely water. But the trace should drop vertically from the float, otherwise the prawn will rise towards the surface. In other words, float and bait must travel at the pace of the stream. A swivel placed at the top of the float will effectually neutralize any twist in the line acquired by the spinning of a spherical cork under the pressure of the current.

For the sink-and-draw method in deep holes, there are two points in the tackle where the weight can be fastened : a large pierced bullet, threaded on a fine strand of gut, is suspended below the bait and acts as a leger ; the same type of bullet can be tied to a swivel or ring specially introduced into the trace at a distance of two feet or so above the flight. The advantage of the latter way is that the prawn floats round independently and almost on a horizontal keel ; also, instead of being rigid, it moves attractively in obedience to any current in the vicinity. Except in the method of sink-and-draw, fish as light as you can and always fish slowly. It gives the fish a good chance to see the bait, allows the bait to sink and provides the current with an opportunity of endowing the dead prawn with the semblance of life. Further, the salmon receives ample time to get a fair hold on it, instead of the tug on its mouth, caused by the weight of the stream on a taut line, giving a clear warning that it is high time to let go.

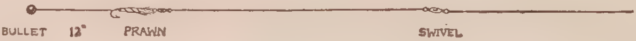


Fig. 184.

Whether a salmon that has taken a prawn should be *struck* at once, or allowed to pouch the bait and then *struck*, or should be permitted to hook itself, is a thorny question. The most rational solution appears to me to allow the salmon to get a proper hold of the prawn and then to assist the hooks to penetrate ; but everything will depend on the number and rankness of the points involved. And the incident described later further complicates the issue (see p. 365). The tackle I have advocated above has been designed with this in mind. A maximum of three points as keen as those of the Partridge hooks (see pl. 25) requires little force to go in over the barb. Some anglers drop the rod on feeling a fish take. An Irishman and an exceedingly-fine fisherman, whom I met on the Chester Dee and on the Spey, drops the point of the rod and gives out slack line, a coil of which he always held in his hand, while the prawn was swimming round. He then tightened rather strongly. When he was reeling in, he kept the rod-point high in readiness to give slack line ; also an elevated rod made it possible to draw in the bait very deliberately without fear of it getting foul of the bottom.

§ 3. *Of preserving prawns.*

Most anglers do not care to concern themselves with this matter and buy their prawns ready bottled for them. This habit is expensive. If you are expecting to use some scores of these baits during the season, it is far more economical to prepare them yourself. Buy from the man who catches or who boils prawns (the former will naturally charge less) the number you need and, if possible, get them in sizes by the dozen ; this will save sorting them later and ensure you possessing an adequate supply of the rarer and most frequently needed small size. Most of us have obliging friends living at a seaside resort, where prawning is one of the staple industries of the local land-locked sailors. Salted prawns are very poor substitutes, but the stale kind, on sale at the shops of inland towns, are very soft and soon fall to bits.

Insert straight pieces of wire of hairpin gauge in the prawns ; in fact, straightened hairpins, these articles happily being no longer in demand, will serve, one end of the wire having been pointed with a file. The baits will thus remain straight and have in them a hole, into which the pin of the flight will fit. Place them in a jar containing a solution of glycerine and water in equal quantities, to which a little formalin (forty per cent aqueous solution of formaldehyde) has been added, and cover them over with a tightly-fitting lid. Another preserving-fluid is a solution of equal quantities by weight of sugar and water. I have tried the effect of this treatment on boiled prawns alone and have no idea whether the same preservative would be successful when they are unboiled ; nor have I tried the effect on salmon of prawns presented in their natural state. Dyed prawns I have used with good results. I dipped some that had lost their colour in a cold solution of aniline magenta ; and they were readily seized by a brace of salmon that had made a temporary home of a large deep backwater. Fish in that hole were usually the despair of every angler throughout the season. Hooking a fish there and playing it might be accomplished : landing it was quite another story !

§ 4. *The practice of prawning.*

Spinning the prawn has already been described in the early pages of this chapter and is to a very large extent covered by the rules of spinning with a minnow or spoon. The difference lies in the speed at which the bait should be wound in ; in prawning, it can hardly be brought in too deliberately, consistently with the rate at which the water is flowing. In a very slack stream, there is a danger of the hook catching in some snag or obstruction on the bed of the river ; the rod-point should be raised a little, or, alternately, the line recovered somewhat faster. In a backwater, the set of the current varies from place to place and ought to be studied closely, if you are to make the most of it in prawn-fishing. A whirlpool is quite able to suck down or hold the line ; and the bait will sink down amongst the very rocks you think it is clearing by a good margin. The whole procedure is a comparatively simple mode of salmon-fishing and needs little more said about it.

The sink-and-draw way of using the prawn requires an intimate knowledge of the river-bed at certain spots favoured by salmon and experience enough to recognize the pull of a salmon, when a novice would think the bait had got foul of rock, weed, or sunken bough ; and that experience is dearly purchased and never infallible in practice.

The throat of a pool in low water is well adapted to the use of the prawn. The rod is held over the rough water and the line is paid out in jerks, so that the prawn appears to be moving by those characteristic backward jumps, which it achieves in life by flicks of its powerful tail. Let the bait go down as far as you think necessary to cover all the lies ; this may well exhaust sixty yards of dressed spinning-line and even more. Then swing the rod-point over and reel up slowly, so that the bait explores the slack edge of the current and gives a second chance to salmon that were too slow or lazy to come, when they saw the bait the first time, or that saw it at the wrong angle. It is generally accepted that a prawn is most likely to be taken by a salmon, when it is first seen by the latter. Work the bait thus in different parts of the rough water, always allowing it to go with the current and never against it, otherwise the scales of the body will be disturbed ; and no fish can be expected to look at an untidy prawn. This way of fishing the prawn can be done with a rod, reel and line constructed for fly-fishing, as it is quite a simple matter to draw line off a fly-reel and to pay it out ; and often the additional reach afforded by a sixteen-foot rod makes all the difference in hanging the prawn and in letting it down on the far edge of a stickle. If a shorter rod had been used, the point would only have projected as far as the current and the bait would have been washed round.

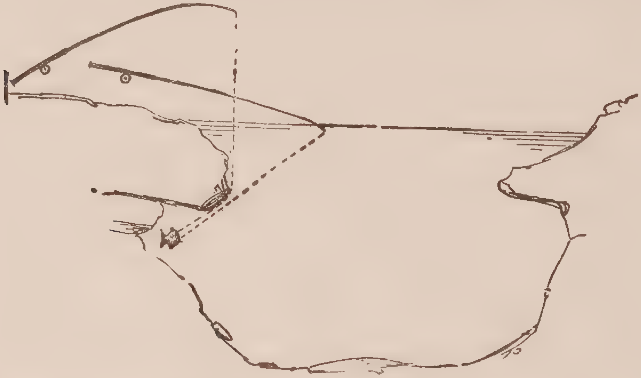
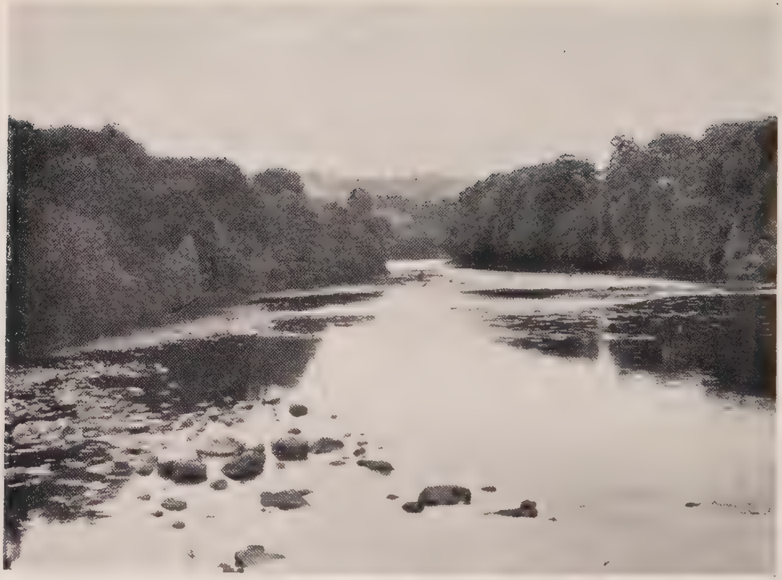
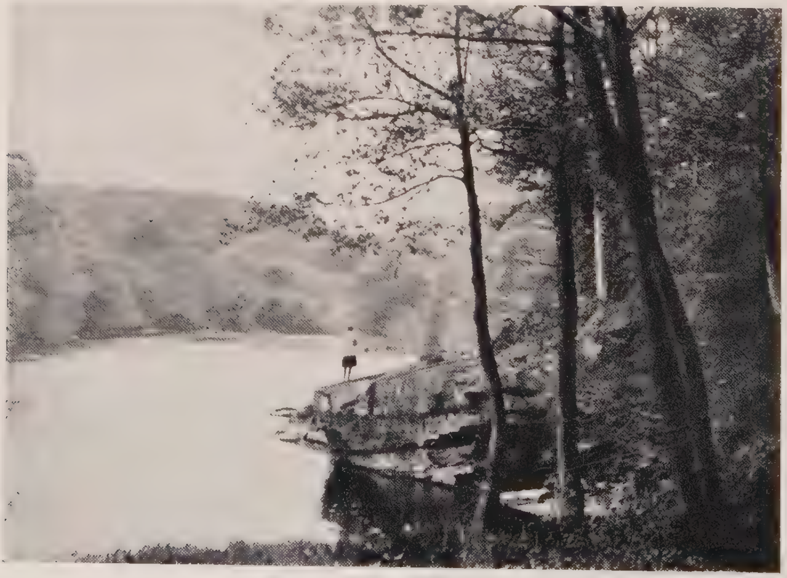


Fig. 185.

Unless the point of the rod is thrust out across and into the water there is danger of the line being cut by the rock-edge, as the salmon runs upstream.

The length of rod in prawn-fishing is sometimes a vital matter when you are fishing a ‘ pot ’ in a river with a rock-cut channel. There is such a place on the Dart : a narrow neck of rock through which the water enters and spreads over the surface of a very deep hole. Centuries of wear have undercut the rock at the neck and the line attached to a salmon when it runs upstream, is taken beneath this sharp ledge and infallibly cut, as though by a razor (fig. 185). Fortunately, I received warning of this, used a sixteen-foot rod and, on hooking a fish, reached out with the point as far as I could and dipped it under the surface. The line tightened up free of the obstruction, but was so badly drowned that, when the salmon leaped from the water, it was some twenty-five yards above the point where the line entered the water. For a moment I doubted whether that could have been the fish I was playing, until I





Plates 67 & 68

WYE, HEREFORDSHIRE

FROM A SUSPENSION BRIDGE, A FEW MILES ABOVE HAY, DURING A DROUGHT.

DEE, MERIONETHSHIRE

LOW WATER.

realized I had noticed the line it was dragging after it. I was lucky to get that fish! It was in apple-blossom time and there were sea-lice on it.

You can never be sure how a salmon will come at a prawn. One day you will feel a gentle touch, as the bait is delicately picked up; the next the fish will take it boldly, so that you feel a snatch, a sensation of the bait being shaken and, I hope, a steady pull, as line is torn off the reel. Only too often the snatch is followed by a straightened rod and a limp line, for the losses in this mode of fishing are exceedingly heavy, and they are without doubt due to the attempt to fix in a salmon's mouth an absurd array of rather dull-pointed hooks.

The other kind of place where the sink-and-draw game often pays is a broad pool, across which you throw the prawn and then recover line in short jerks that give a most attractive motion to the bait. This way has now largely been superseded by straightforward spinning.

There is, lastly, a special way of dibbing with a prawn in the deep holes and backwaters that are common features of rivers flowing through rocky beds. The disadvantage of using either prawn or worm in the manner about to be described is the ease with which salmon can thereby be snatched, especially if a large pierced bullet is employed as a sinker; but the backwater, in which I have most often practised this form of prawn-fishing, does not lend itself to snatching, because there are far too many sunken snags and too few salmon. A tree thrusts itself almost horizontally over the backwater. Along this I used to climb, until I could poke the rod-point through the branches and, by releasing the small coil of line held in my hand, let the prawn gently down into the depths, that is, with the water at normal summer-level, about ten feet. As soon as I felt the bait touch bottom, I started, by pulling line through the rings, to lift it very deliberately to the surface and then allowed it to sink again at the same pace. If there was no reply in the first area, I went on to another and thus covered all the backwater within reach of an eleven-foot spinning-rod. It was not very easy to tighten on a fish that came up for the prawn; it was the most awkward place I ever knew in which to play and gaff a fish; yet the sight of a great salmon ascending through several feet of clear sunlit water to grab the prawn and go off with it across its jaws was well worth all the trouble and the loss of far more than were landed. One day, I made the experiment of not striking when the salmon took the prawn. The line was quite slack, but, after half a minute or so, the fish spat the bait with considerable force from its mouth and smacked it very savagely with its tail. After that, I decided the hooks should be pulled in as soon as a pluck was felt. A remarkable thing about this prawning was the way fish took old and bleached baits dipped in magenta aniline dye; they appeared quite indifferent to the colour of the bait. For prawning in this manner, use a trace of artificial gut, a *very keen* single round-bend hook and a pierced bullet attached below the hook by a foot of fine gut.

In some rivers it is possible to spot a salmon and guide the prawn to it. I know a rocky ledge with clear and shallow water flowing over it that is a chosen lodge, where salmon rest in the month of May. You must creep up gradually from the upstream side (for it is a backwater), until you can see over the edge, and you are almost sure to find a fish in possession. Dib a prawn above and allow it to come round with the eddy in front of the fish. It may not be taken at once; it will, perhaps, swing in the current for a minute or more, before it arouses any interest; it may not be taken at all. But if you do it skilfully, the odds are in your favour.

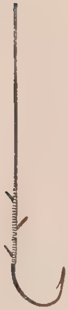


Fig. 186.
SHANK WITH BRISTLES.

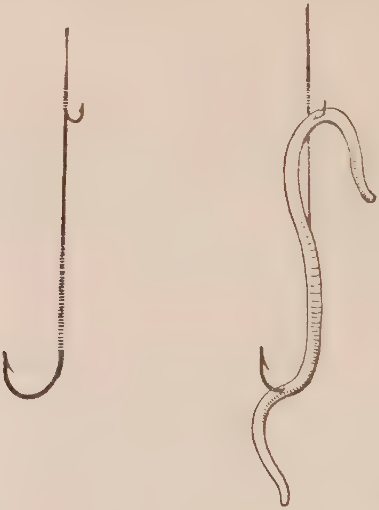


Fig. 187

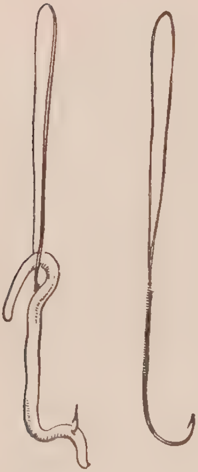


Fig. 188.

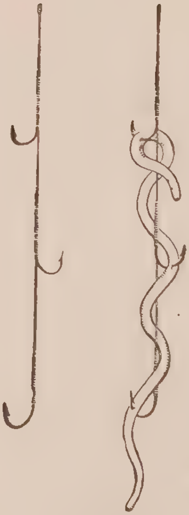


Fig. 189.
STEWART TACKLE.

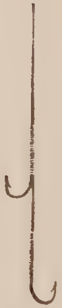


Fig. 190.
PENNELL TACKLE.

§ 5. *Of worm-tackle for salmon and using it.*

I know of only five species of tackle that are of practical value in this kind of worm-fishing: the single round-bend hook, to which several bristles have been whipped, in order to support the bait and keep it in position (fig. 186); the same type of hook and a small hook whipped an inch above the end of the larger one, to which the head of the worm can be attached (fig. 187); the round-bend hook whipped to a loop of gut, within which the head of the topmost worm can be slipped, so that the whole bait is extended in an attractive manner (fig. 188); the Stewart tackle (fig. 189); and that invented by Cholmondeley-Pennell (fig. 190). The two last-named are not particularly efficient in hooking, as the small hooks, three in the first instance and two in the other, do not project enough to go home easily and with despatch. If the hooks in the other tackles are of first quality in respect of the keenness of the point and the neatness with which the barb has been cut, I do not think there is any comparison between them and the multi-hook type. Of the three single-hook tackles the third is my favourite; it was given to me by a friendly fisherman I met on Speyside and I have not come across it since then. The method of baiting these tackles will be seen by referring to the figures.

The weighting of a worm-tackle is done either by tying with a length of fine gut a small pierced bullet below the worm, so that it will function as a leger and allow the bait to be fished at a constant distance from the bottom and also save the tackle, because the bullet, being round, will roll over many obstacles that would afford a fatal attachment for the hooks; and if a snag holds the weight so tightly, that it cannot be retrieved, there is no more damage caused than the loss of the bullet and gut. The placing of the lead in this position is well enough in coloured water; for use in a low clear stream, the lead ought to be far less obvious and the mode of fishing somewhat different.

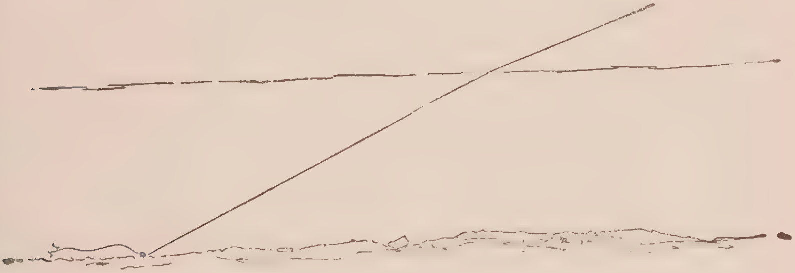


Fig. 191.

THE WORM-TACKLE WEIGHTED ABOVE THE WORM.

The trace to which the worm-tackle is fastened should be a length of artificial gut, in each end of which a loop has been whipped; natural gut will be found expensive as losses in worming are far from rare. For clear water, take a thin trace and fasten half-way up it a pierced bullet, making the attachment with fine gut or with tying-silk; or the bullet may be run on to the trace and held from descending as far as the worm by the presence of a tiny split shot nipped on the gut. This form of tackle is adapted to running and by its aid a worm can be thrown across a sandy pool and allowed to swing round under the influence of the stream. The bullet will roll along the bed of the river and the worm will precede it slightly raised above the sand. You will sense many obstructions and feel frequent checks in the journey of the worm across to your own bank. Every time you must make certain it is a snag and not a fish that is the true cause of the tightening of the line, until you learn to know almost by intuition how to distinguish between them. As often as not the salmon moves off with the bait and this should be hint enough to let out line, if the current allows, until the fish has ceased running. You may then reel up cautiously, until you can feel a weight, and tighten. A small pull will usually fix the hook, which by that time will probably have been taken well down.

Worming for salmon in thick water is like worming for trout. The line should be kept as taut as possible and the bait held up off the bottom. Whether it is better to tighten at the instant the pull of a salmon is felt or give line for the worm to be gorged I do not know. It is a form of sport for which I have little desire and even a positive distaste, when eels are about! In fast water, you will often have to throw the worm upstream, in order to get it to the required depth; this is about the most promising way of losing tackle through getting soundly fixed amongst the boulders! But the risk will have to be taken, or another spot must be found. This is probably the occasion when the clearing-ring might be a godsend.

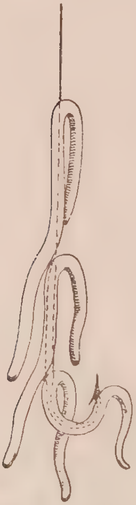


Fig. 192.

WEBSTER'S WORM TACKLE.

(See *Angler and The Loop Rod.*)

The deadliest time for worm-fishing is, in my experience, during a low-water spate. Some years ago, I was trying for some fish that I knew were lying within a rather restricted area and had taken out fine tackle and a long trout-rod. There was a sudden thunderstorm a short distance upstream and the river, without rising more than an inch or two, came down thick yellow with the road-washings. I luckily had some worm-tackle in my wallet and a lead bullet I had previously been using on the Dart. Under the stones there were a few large worms, squirrel-tails, to be had and by the time the rain had ceased I was ready to test conditions Mr Chaytor had found so favourable for the use of the worm. I failed to hook the first fish that took the worm, partly through my haste in tightening and partly, because I had forgotten the rod I was using would yield too easily and could not be expected to pull home the large hooks. But the result of my fishing fully justified what Mr Chaytor had written of worming in a low-water spate.

§ 6. *Of worms.*

Fresh worms are never as tough or as lasting as those which have been prepared. Get some large lob or dew worms; place them in a tin with plenty of dry moss and leave them there for a few days, a week if possible; they will then be scoured and free from the slime that makes them slippery to handle. When you take out your quota for the day, remember to slip into your pocket a small tin of grit and dip the worms in this before attempting to thread them on the hook. The grit that adheres to the worm will provide an excellent grip and make the labour of putting a worm on a hook an easy task. Mr Lamond's excellent *Piscatorial Problems* should be consulted on the subject of the kinds of worms suitable for fishing.

CHAPTER THIRTY-FOUR

REPAIRS AND SALVAGE

> 'YF ye woll be crafty in anglynge: ye most fyrste lerne to make your harnays': *The Treatise.*

§ 1. *Of wax.*

THE best and most lasting of all waxes is, without any doubt, cobbler's wax; but it must be used sparingly on silk, except when colour or staining does not matter. In winter the consistency is distinctly harder, so that either the wax has to be warmed or a little piece of tallow should be worked into it to soften and make it lighter in colour. It is, however, possible to buy it specially prepared for summer or for winter. If cobbler's is employed on tying-silk, the latter should be doubled, perhaps even quadrupled, and rubbed very gently with the wax, so that the floss of a body shall not be discoloured and stained. Francis said that it could be dissolved in rectified spirits of wine and used as a liquid wax; I have not tried this tip. Be sure to keep the stock of wax in a small jar of water, or wrapped very tightly in a greasy paper that will, to a large extent, exclude the air from contact with it.

Some men keep the piece of wax with which they are working within the fold of a slip of leather and then squeeze it, until it spreads and adheres to the surface. I prefer placing a tiny pill of wax on the tip of a finger and rubbing the silk with that. The finger-tip is easily cleaned with turpentine, methylated spirit, or spirits of wine.

Pure beeswax is quite a good form of wax, provided it is not to come in contact with paraffin; it is therefore unsuitable for dry flies. In conjunction with resin it forms an excellent compound wax. Take two ounces of resin and one quarter of natural beeswax (not the refined variety sold in discs at the chemist's); let them simmer in a stone jam-jar that has been placed in a saucepan of water. You may add a little turpentine if you wish or a quarter ounce of tallow and let the whole simmer for a quarter of an hour. Then pour the wax into a basin of cold water and pull it with the fingers, until it is pliable. It is a good plan to prevent the jar cracking to place a small sheet of paper under it, so that the flames shall not play directly through the metal on the earthenware. This recipe is adapted from that given by Francis. Another wax of this type, but one that is a colourless and semi-liquid is described by McClelland on page 53, *How to tie Flies for Trout and Grayling.* But there are many dealers who will sell you an excellent fly-dressing wax, if you cannot make up your own.

Another form of clear wax, for which I am indebted to Mr Pickering of Blackburn, is made by melting together in a one-pound jar two ounces of well-powdered light-yellow resin, two drachms of natural beeswax and the same quantity of white vaseline. This should be allowed to simmer and be gently stirred. Remove the saucepan from the fire, add a quantity of best turpentine and stir all the time. Replace the pan on the fire and continue stirring, until the wax has reached the consistency you desire. Then pour it into a large wide-mouthed glass-jar and close it securely with a deep cork. This wax is semi-liquid and should be applied by dipping the tip of the finger in it and then drawing the silk between finger-tip and thumb. Treat several lengths, hang them over a long hatpin until they are needed and clean the fingers by washing them with soap.

It often happens, especially during the hot weather, that the wax originally rubbed on the silk has been transferred to the fingers. To avoid the risk of the silk snapping in the process of replacing it, Dr Pryce-Tannatt employs a liquid wax that can be painted on the silk or on the turns at critical places, such as the foundation of the wings. It is made by dissolving white saddlers' wax in acetone and is colourless. It is best kept in a small half-ounce bottle and applied with a fine-pointed camel's-hair brush, which will need wiping after use, or by sticking in the inner face of the cork a stiff hackle-point, long enough to keep it always immersed in the wax.

If you are about to recondition a rod, buy a small quantity of the white beeswax mentioned above, as it does not change the colour of the whipping-silk.

§ 2. *Of varnishes.*

For applying a waterproof coat to rods there is nothing to approach Best Carriage Finishing Varnish for elasticity and hardness of surface. I am here breaking a rule and giving the name of the maker: Messrs Mander Brothers of Wolverhampton. For the rough and temporary jobs that fishermen sometimes have to undertake shellac varnish serves; but it is unsatisfactory, because it bleaches as soon as it is damp and when dry is friable and inelastic. This varnish is made by dissolving a quantity of shellac in white methylated spirits, that is to say, it is French polish. A red varnish can be obtained by dissolving red sealing-wax in this liquid or in spirits of wine; but it is short-lived.

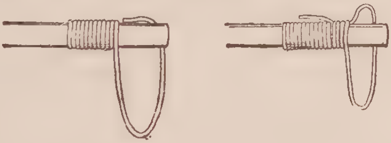
For the heads of salmon-flies a black varnish may be bought. I do not know what it consists of, but fully twenty-four hours should be given it to dry hard.

The hardest varnish for fly-dressing purposes that is known and used to-day is a solution of celluloid in equal quantities of acetone and amyl acetate (synthetic essence of jargonelle pears). This liquid is highly volatile and inflammable; and should be kept away from the fire or any naked light. The solution is the same as that used in producing the cellulose finish to the coachwork of motor-cars. The celluloid should be cut into small strips and allowed to dissolve until a saturated solution has been obtained. This material can be bought, but I have always used pieces of old photographic films, from which the emulsion and gelatine had first been removed by washing them in a strong solution of caustic soda. Soaking the film first and scraping it shortens the boiling process.

If you wish to obtain this varnish without going to the trouble of making it, you can probably buy a small amount of cellulose paint from a garage that carries out repainting; or buy it in a special form, 'Cellire,' which if anything is rather stronger ; it may be obtained clear, white and other shades. The clear 'Cellire' is about the right consistency for employing at important stages during the dressing of a salmon-fly, but is too thick for trout-flies ; this is easily obtained at the tackle-dealers.

§ 3. *Reconditioning a rod.*

Carefully remove all the rings and whippings and be very sparing and light in using a knife to cut the silk. With the blade of an old knife or with a steel scraper, *held at right angles to the wood*, take off all the old varnish. Give the rod a light rub with sandpaper (00 size), until there is a dull smoothness on its surface. Then take some stout unwaxed button-hole silk or flax and rewhip the rod at the original intervals in the following manner. Fasten in as described on page 274 and take three turns. Put in the loop and bind down with one turn. Cut the waste and bind on until the required width is obtained. Fasten off with the whip-finish (figs. 193–4) and hide the end as described on page 134. The positions occupied by the old bindings can generally be seen as pale scars on the bamboo ; otherwise you must tick them off on a long thin slip of paper and mark them in pencil on the rod, as soon as it is clear of old varnish. Be sure the rings are properly aligned and start the whipping that secures them on the outside and work inwards, so that the coils shall not fall down the step of the bevelled ring-seating. The top-ring is first of all wrapped with polished copper wire and then bound on with silk. When you have taken the required number of turns of wire, hitch it under one of the legs of the top-ring and bind down over it.



Figs. 193 and 194.

THE WHIP-FINISH AT THE END OF A ROD.

To prepare the whippings for the varnish rub them sparingly with white wax, work it well in with a toothbrush and bone the silk with the back of the brush or with a smooth piece of mutton-bone. Make up the edges of the binding and the rod is ready for varnishing.

Pour a spot of carriage varnish into a tin-lid, rub the tip of the middle finger of your right hand on the back of your head, so that a little of the natural grease adheres to it, and dip it very cautiously in the varnish. Stroke the bamboo with this and try to leave the thinnest possible coat on it. The thinner the layer, the more likely it is to dry hard and to ast. I do not advise the use of a brush for this purpose. Make a rule, when you are starting to put on the varnish, that you will follow down one face of a split-bamboo joint to a certain point, before putting any on the next. You can make a similar arrangement if the rod is of greenheart, so that the whole surface shall receive one coat and no more than one, until the first is hard and the final one may safely be applied.

A rod ought to be allowed to stand to dry in a warm room that is free from air-currents. This keeps it clear of flying dust that would adhere to the sticky surface. But it is possible, by putting a rod, wet with varnish, into a room filled with pumice-dust, to produce on it a semi-matt surface that will not reflect the rays of the sun. Another method of preventing flash is by the use of matt paint instead of varnish as the *final coat.*

Clean the cork-grip with very fine glass-paper and the rod is once again in good condition, unless you wish to replace the bronzing on the ferrules (see *Trout Fishing from All Angles*, pp. 196 and 197).

Saddle-pattern porcelain rings, mentioned on page 95, are fixed on a rod with turns of well-waxed silk ; but in order to ensure a proper foundation for the concave seating of the ring, a few coils of machine-twist are taken round the rod.

§ 4. *Of rescue from the embrace of trees.*

Whenever I hear a fisherman talk of rescuing a fly from the topmost branches of a tree, my mind instinctively turns to a painful incident that happened to me on an otherwise delightful summer morning. I had been disgracefully broken by a fish through hastily striking as it took the fly and was vowing I would make a better show of it the next time a fish

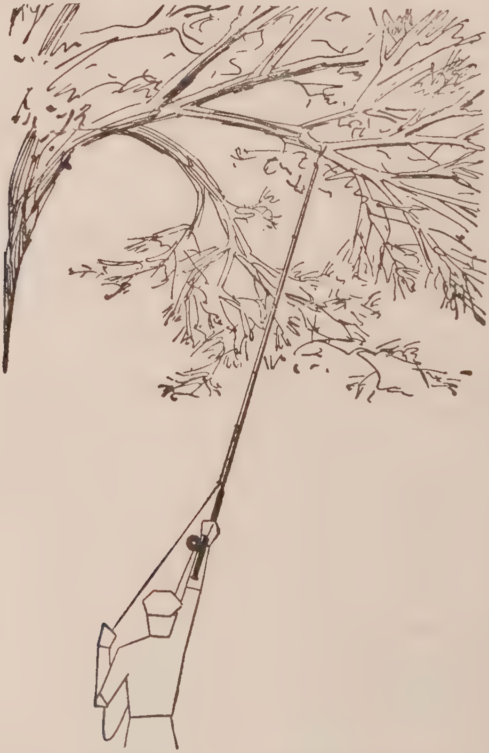
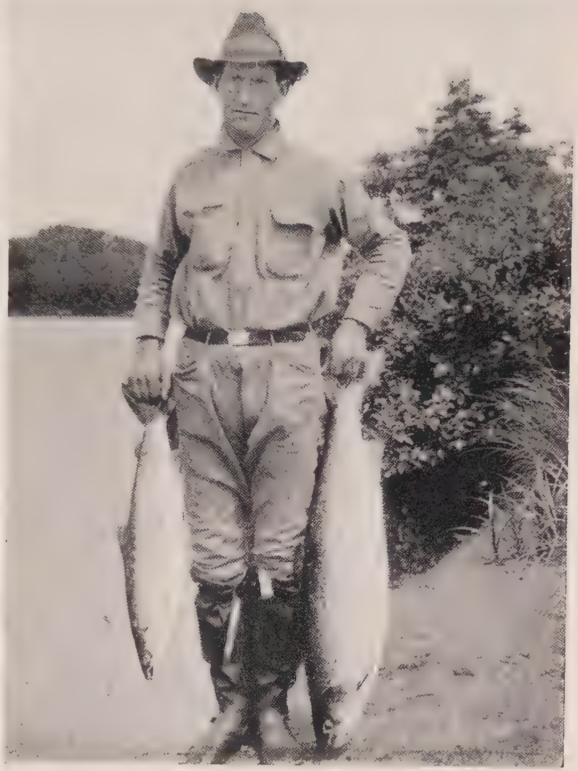


Fig. 195. RECOVERING A FLY FROM A TREE.

MALE SALMON

A FINE SPECIMEN WEIGHING FORTY-ONE POUNDS.



Plates 69 & 70

LITTLE CODROY RIVER, NEWFOUNDLAND

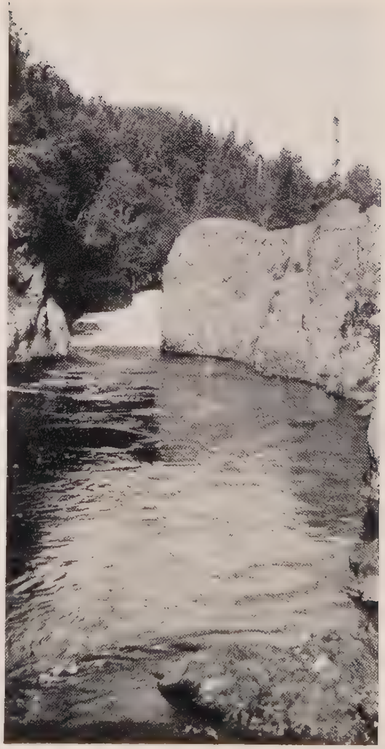
FEMALE SALMON 12 AND 28 LBS. RESPECTIVELY, TAKEN ON A 7½ OZ. NINE-FOOT ROD.

TERRA NOVA RIVER

SALMON POOL AT THE FOOT OF THE FALLS, SEVEN MILES FROM WHERE THE RIVER FLOWS INTO THE SEA AT BONA VISTA BAY, NORTH-EAST COAST OF NEWFOUNDLAND.

INDIAN BAY RIVER

LANDING A SALMON AT THE OUTLET FROM THE UPPER LAKE. NOTE THE SHORT ROD.



Plates 71, 72 & 73

INDIAN BAY RIVER

A SALMON POOL ON THE UPPER RIVER ABOUT FOURTEEN MILES FROM THE SEA ON THE NORTH-EAST COAST OF NEWFOUNDLAND.

came at me. As ill-fortune had it, a small piece of a common *alga*, green flannel weed, floated against the line, which so much astonished me, that I struck violently again and flicked the fly up into the branches of an overhanging tree. The rod was put on the bank, while a survey was made of the position of the fly. As soon as I was satisfied I might succeed in lifting it off, I took up the rod and then dropped it with extraordinary alacrity, for with the cork-handle I had included in my grasp a wasp, which quite rightly resented this treatment. I also was very much hurt at the reward dealt out to me for the exercise of most commendable patience in recovering the fly ! However, the fly did, at length, come away from the branch, as soon as I had pulled the line through the rings, until the tip could reach the fly, so that by keeping the line tight, I could lift the hook off the twig that was holding it.

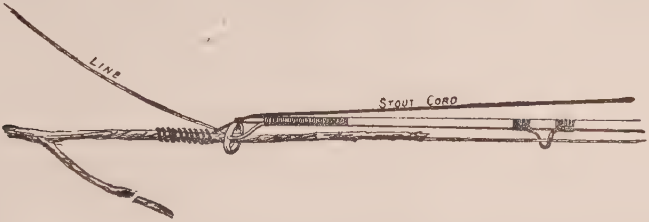


Fig. 196.

The forked stick is held in the top ring by tension on the cord until it is placed in position.

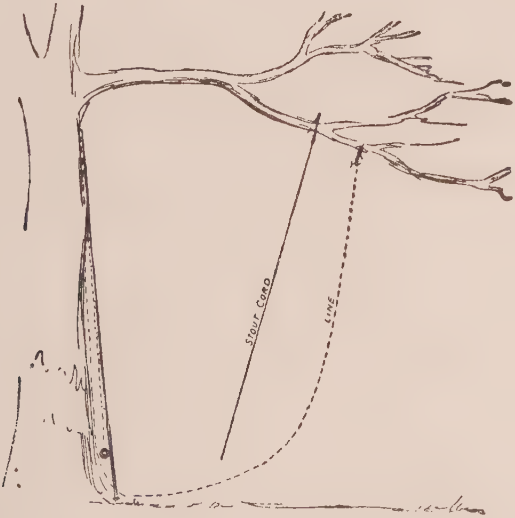


Fig. 197.

The branch is pulled down by means of the cord until the fly can be reached.

This trick will only succeed when the tip of the rod will reach as far as the fly. If the rod is not long enough to unhitch it point the former towards the snag, draw the line taut and pull on it slowly, until the fly comes away, the twig breaks or is bent low enough for you to get hold of it, or the gut snaps. This handlining is more effective than straining with the rod and does little harm to any of the tackle.

If the fly is within reach of the rod, but will not yield to the lifting of the rod-point, cut from the hedgerow a small forked stick, leaving one leg of it longer than the other. To the middle of the long leg tie a length of stout string, pare the end of this leg until it fits in the top-ring of the rod, and place the crook of the stick over the branch on which the fly or minnow is fast. As soon as the hook is in position, take away the rod and haul on the string, until the branch is depressed far enough for you to grab it. The release of the hook is then a very simple matter.

A projecting bush on the angler's own side that hangs low down, almost to the surface of the river, often catches an ill-thrown fly or minnow. The best method of recovery is to tie a stick or a bottle on a bight of the line, allow it to float downstream, pick it up below the bush and then to pull from that side. This generally succeeds, where a direct pull would have tightened the hold of the hook.

Whenever your fly or minnow is held up in some snag, do not start pulling hard, until you have sat down and thought the problem out. There is in these difficulties much room for ingenuity and much amusement in solving them. But, if there is another who wants the use of the pool, do not disturb the water without his consent. Very often you will feel it more sporting to break the line and lose the minnow.

§ 5. *Of salvage from the river.*

A very ancient way of releasing a minnow or other bait from the bed of the river, where it had been entangled, was an iron ring, large enough in diameter to pass over the rod, which was tied to a length of strong cord. The ring was allowed to slide down the line and, as soon as it reached the obstruction, the cord was pulled until the snag gave way. It is rare in these days to see a torc of this kind being used.

The modern way, when all forms of persuasion have failed, is to try and float it off. An empty bottle, well-corked, is tied by a noose to the line and allowed to float past the point where the minnow is held ; it may be necessary in order to get a direct pull downstream, to throw the bottle well beyond the snag. In a very strong stream and if the minnow is really but lightly hooked, the bottle-trick will often succeed ; but as a rule it fails, because there is not enough resistance offered by the bottle to produce the required pull to effect a release. Instead of the bottle I have used a stone, which I have attached to the line with a running noose and have thrown it across and beyond the snag. A sharp pull on the line will sometimes loosen the minnow, when the stone is on the far side of it.

It is a good rule to try to get a strain on the line from the opposite bank and therefore the arrival of anglers on the other bank ought to be hailed with delight, because it is a comparatively simple feat for one of them to throw a fly or, better still, a minnow or spoon, across your line, draw in to their side and pull the minnow away from the rock or whatever the snag happens to be.

As soon as you realize you are fast in a rock, let out some slack until there is a good bight in the line downstream and by giving several sharp tugs at the line see whether the head of water will release the minnow. Do not try a direct pull that may spoil all hope of your succeeding when the other methods are brought into play. If you are forced to break, make a mental note of the approximate distance the snag is from the opposite shore and try to get two objects that will give you a line on it, so that you will stand a chance of recovering the minnow when the water has fallen enough to enable you to wade across and search for it. It is not worth risking your life for a minnow in attempting to cross a swollen river.

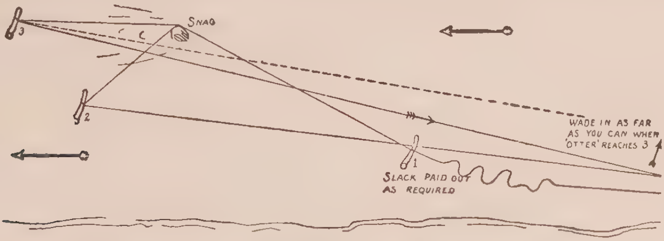

SNAG
3
2
1
WADE IN AS FAR AS YOU CAN WHEN 'OTTER' REACHES 3
SLACK PAID OUT AS REQUIRED

Fig. 198.

SHOWS IN PLAN THE METHOD OF USING THE 'OTTER.'

In 1920 I suffered from an epidemic of losing minnows and had to think out some more reliable way of recovering them. One day I was held fast by a particularly tenacious rock and found myself without the customary length of string. Accordingly I placed a small branch of a tree athwart the line and floated it down below the snag, so that a pull might be administered to the minnow. I succeeded so well that it was but a small step to the adaptation of the poachers' 'otter' to serve the same purpose. This consisted of a short piece of driftwood to which a piece of *smooth* cord was tied. In the end of the cord was made a fixed loop which ran upon the line. The cord was so tied on the wood that the fatter end of the branch was nearer to the point of attachment than the other; this ensured the 'otter' shooting diagonally across the current as soon as the force of the water pressed upon it. The chief difficulties were at first to prevent the loop being twisted and closing on the line and

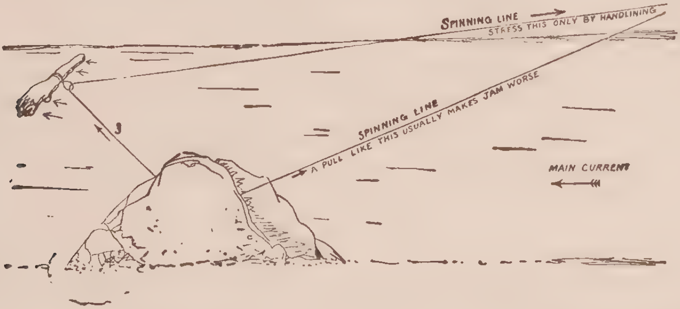

SPINNING LINE
STRESS THIS ONLY BY HANDLINING
SPINNING LINE
A PULL LIKE THIS USUALLY MAKES JAM WORSE
3
MAIN CURRENT

Fig. 199.

Here is an example of how a minnow may get fast and how it is often possible with patience to free it.

to ensure the 'otter' working in the right direction. The latter was overcome by placing the wood carefully in the water in the right way and maintaining a steady pressure on it, while it was travelling. The pinching of the line was partly cured by using thicker cord, although some men have, since then, tried chicken-rings, key-rings, paper-clips and other such devices.

The procedure to be followed, as soon as the 'otter' is in position and is travelling out and across, is to walk upstream to any place that will enable you to get furthest across the river, because the more the strain upon the line comes from there, the better the wood will cross and get beyond the snag (see figs. 198–199). The 'otter' is then allowed to float down some yards, while line is paid out and eased by undulations of the rod. When you feel the pull of the line, give a good jerk—with the hand, not with the rod-point ! This will often dislodge the minnow. If not, try all you can to persuade the 'otter' to go yet further over and repeat the jerk when the drag on the line reaches your hand.

The weight and length of the wood are important items, as they must be adjusted to the flow of the river at the time. A heavy 'otter' in flood-time will strain a line beyond recovery ; a light and short one where there is only a slack current will present adequate surface to the water. If you find you have erred in your judgment in these respects and wish to change the 'otter,' go downstream, let out plenty of line and the wood will slip gently along the line and soon come into your own bank.

By this method and by adapting it to circumstances, I have accomplished some extraordinary feats of salvage ; and all the fishing friends to whom I explained the trick have had similar success.

CHAPTER THIRTY-FIVE

DRY-FLY FISHING

By G. M. L. La Branche

GEAR.

The rod.

ONE of two qualities should govern the selection of a rod : its suitability for casting or for killing the fish quickly. It is practically impossible to fulfil both requirements with the same rod and therefore one has to decide which is the most desirable. It is clear that it is more difficult to rise the fish than it is to kill it when hooked, and the angler must make up his mind whether he finds more sport in the struggle with the fish than in seeing the fly taken when accurately placed.

The rod which I prefer for dry-fly fishing is a two-handed weapon fourteen feet long, and for easy transportation, in four sections. Its weight is about seventeen or eighteen ounces with the greater part of this weight, say ten ounces, in the butt joint, and as part of the weight is in the rubber-covered metal button it will be seen that the rod which may sound inordinately heavy is not top heavy nor is it tiring to use. It was designed by the late Colonel Monell, who was a skilful analytical engineer as well as a keen and intelligent angler.

It is evident that this rod is primarily for casting, but Colonel Monell did not overlook the fact that the light leaders have to be used, so some small sacrifice of casting power was made by slightly reducing the thickness of the top joint. This rod will cast the line as far as one can really fish it.

The line.

A good weight of line should be used, not of very large diameter but one that is heavily dressed. A tapered line is preferable but not a long taper, for it is obvious that as the weight of the line beyond the top joint furnishes the driving power, a greater length must be used if the taper is of considerable length. Also, a long taper with a fourteen-foot leader is almost impossible to handle in a high wind. It must be remembered that greater liberties may be taken with salmon than with trout and a much shorter line may be safely fished.

The line must of course balance the action of the rod perfectly and it must be realized that it is just as easy to get a line which is too heavy for the rod as it is to get one which is too light, and there is no doubt that it is best to err on the light side.

The better casting lines are made in lengths of forty yards and this with a backing of nine-thread linen or undressed silk line will be more than sufficient on the average river. There is more risk of rotting in silk than in linen lines, and I therefore recommend the latter which I use myself. In any case the backing must be well spliced to the casting line.

The reel.

I prefer the raised pillar type of reel, single actioned and with a large spool to take the one hundred and forty yards of line without crowding. Its weight must balance the rod. The stick should be extremely light, in fact, just strong enough to prevent over-running water when casting.

The leader.

The gut cast or leader should be twelve feet in length for the rod described and should be of a strength to stand a dead weight pull of two and one-half pounds. It should be tapered, the first three feet at the thick end being level, the rest which tapers may be connected with the other by each having a loop on the end, thus saving time if the lower and more delicate end is injured. This light leader will cause less drag than the heavier sizes and this is reason enough for its lightness, though there is also the added reason that it will be less easily seen by the fish.

It may be of interest to say that I have killed forty salmon in ten days' fishing on one of these leaders.

Oil.

In order to help the fly to float and to prevent thorough drenching, it is necessary to cover the feathers and body with an oil which will act as an aid to flotation and some of this oil must always be carried. For myself, I am satisfied to use a patented liquid called 'Mucilin,' which is the invention of an English angling chemist. Under the same name is produced a solid dressing which is excellent for aiding the line to float, for a floating line is more easily picked up from the water and exerts far less drag than a sunk one does.

The fly.

The first thing to be realized is that notwithstanding the fact that I and many other people, have seen salmon actually taking insects from the surface of the water, there is no need to present to the salmon an imitation of some natural insect. The most learned students of the life habits of this fish are in agreement that salmon come into the rivers only to spawn and are believed not to feed at all while on this errand. Imitation of the natural insect is, therefore, not necessary, because it would be fruitless to study means of exciting the appetite of a fish that has no appetite to excite.

Why salmon take the artificial fly has been discussed by theorists for generations, and their conclusions, speaking generally, seem to be that the fish mistakes the fly for food and it excites their hunger, or else because it arouses their anger or curiosity. The supposition that salmon do not feed in fresh-water caused me to abandon the hunger theory when I began my experiments. No doubt salmon may be killed with good imitations of insects, but there is equally no doubt that this is not necessary. There is perhaps something in the theory that the effect of the artificial fly on the fish is that it reacts to the impulse which prompted vigorous feeding during its early river life. This theory, however, would mean that the salmon was capable of remembering, and we have no information on this point.

After many experiments which occupied most of my time and thought during one winter, I evolved ten patterns all of which killed fish next season. Four of them, however, seemed more effective than the others, and these four patterns I now use exclusively and they seem to be an adequate variety. As will be seen in the patterns given later, these flies have no wings and owing to the weight of the hook which has to be supported, the hackles are carried on down the length of the body. These hackles are, of course, cock hackles, and as dyed feathers have to be avoided because of their tendency to absorb the water, they are limited in colour to the few shades of brown and grey which are provided by Nature. As a matter of fact these colours interest the fish more than the reds, blues and yellows which were tried. The final forms of the four patterns finally decided upon are the result of many years' experience on the river.

Size is important at times, but for all practical purposes nos. 4–10 will prove satisfactory, nos. 6–8 being most useful.

Colonel Monell.

Hackle : Grey Plymouth Rock cock's, tied Palmer.
Body : Peacock herl with rib of red, lightly dressed.
Tail : Five or six whisks of hackle.

Soldier Palmer.

Hackle : Brown or brownish red, tied Palmer.
Body : Red dubbing with rib of tinsel, lightly dressed.
Tail : Five or sick whisks of hackle.

Mole Palmer.

Hackle : Dark brown lightly mixed with grey at shoulder, tied Palmer.
Body : Brown dubbing or quill, lightly dressed.
Tail : Five or six whisks of hackle.

Pink Lady Palmer.

Hackle : Ginger-coloured, one or two turns of light yellow at head, tied Palmer.
Body : Light pink silk, rib of gold tinsel, lightly dressed.
Tail : Five or six whisks of hackle.

It is important that the hackles be stiff, that enough be used to make the finished fly a fluffy thing, and most important of all, that the hackle *shall stand out at right angles to the shank of the hook and all round the body.* It is impossible to over-accentuate one point and that is—*tie the hackle directly at right angles to the body.* This, in my opinion, is the most important point in the tying of the flies.

The method of fishing.

In presenting the fly to the salmon there are three points which I consider should be accentuated, and I set them down here in the order of their importance. *The fly must float high ; it must be placed close to the fish ;*

drag must be avoided. The first of these points is made simple by the sentence which I made so much of while talking of the fly. *Tie the hackle at right angles to the shank of the hook.*

With regard to the second, I think the main endeavour of the angler should be to have the fish see the fly.

The key to my third point is casting. It is not my purpose to give instruction to the novice. This will be found in another part of this volume, but there is one aspect of it on which depends the avoidance of drag. This is the curved cast. The office of this cast is not only to avoid drag, but to keep as much of the leader as possible away from the fish. In order to make the cast it is necessary for the fisherman to be able to 'Shoot the line,' as it is called, by holding a loose line in his hand as he casts and letting it go as his rod comes forward so that the weight of the live line (that line which is free of the top) pulls after it the loose line. This is a question of perfect timing and unless one has mastered the rhythm of casting there is little to be gained in attempting to control the fly after it has been cast.

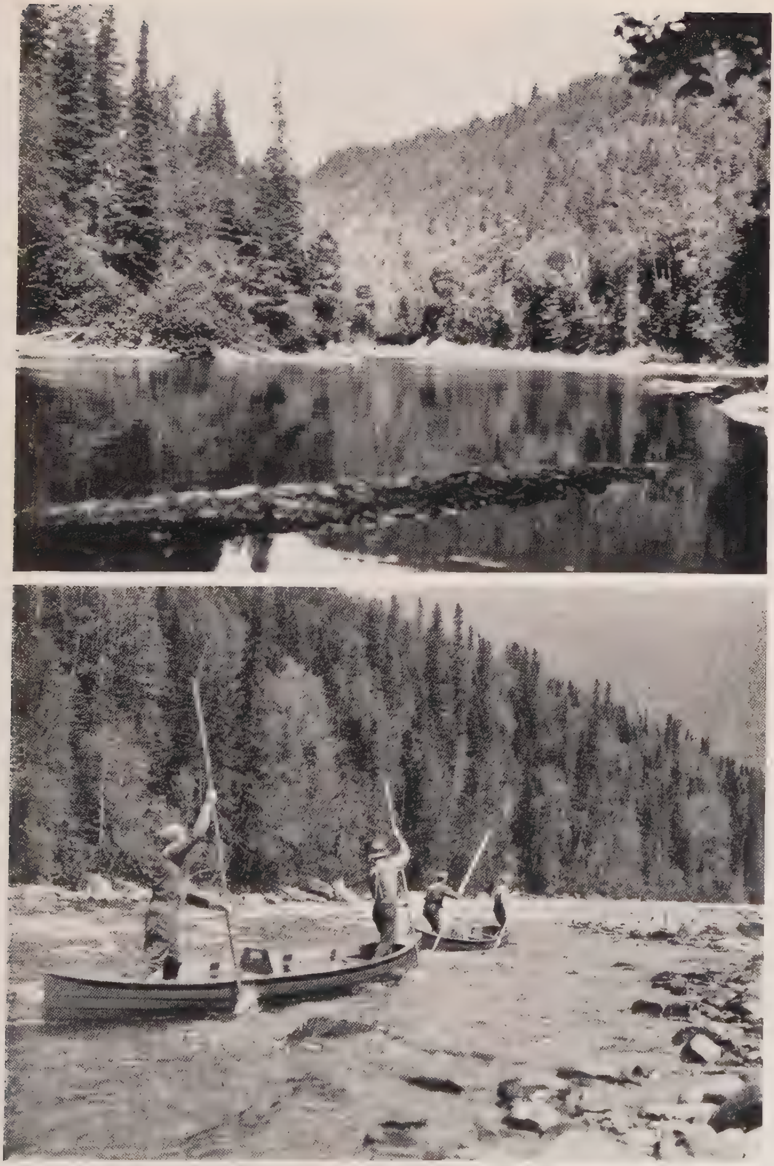
The curve to the left is simple because the angler may retrieve his fly with ease if it appears to be going wrong before it has touched the water. False casts may be made until the fly is sent in the right direction, and it may be allowed to drop when the angler is satisfied that it will fall properly.

The casts to the left- and right-hand banks are made in an entirely different manner from each other, though both are quite simple once the principle is understood and the knack is easily acquired.

The curve to the left.

When the angler has fixed on a fish and has selected the spot on which he is to direct his fly, he must take up a position so that his objective is not at a greater angle than forty-five degrees, but he should not attempt to cast with more line than can be kept alive in the air without effort. A fair length of line to start with would be about thirty-five feet, for the rod which we have discussed, for control of the fly is lost after a certain distance is reached. This thirty-five feet does not include the six to ten feet which the angler will then be able to shoot from his hand.

It is important that the angler should learn to judge distances as accurately as possible. Until he can do this he should cast the fly straight upstream and allow it to fall upon the water at a point which is assumed to be the correct distance. This may be checked by drawing an imaginary line on the surface of the water between the fish and the fly. Being satisfied as to the distance the angler makes a cast towards the fish, but not directly at it. About three feet more line should be used than is calculated would reach the fish and the calculator should direct the fly about three feet, or even more, upstream from the fish and as the line is about to straighten he should pull or hold back the top of the rod enough to stop the fly. This will throw the fly out of the direct course and will impart to the line, and obviously to the fly, an impulse to return as it would if being retrieved. If this check is timed properly the fly will be thrown downstream and the leader and forward part of the line will fall where they are, a sharp curve will be the result. The length and diameter of this curve depend upon the degree that the rod is held from the vertical,



Plates 74 & 75

GRAND CASCAPIDIA

TWO EXTREMES IN TYPES OF WATER. IN THE LOWER PHOTO THE METHOD OF PROPELLING THE CANOES SHOULD BE NOTED.

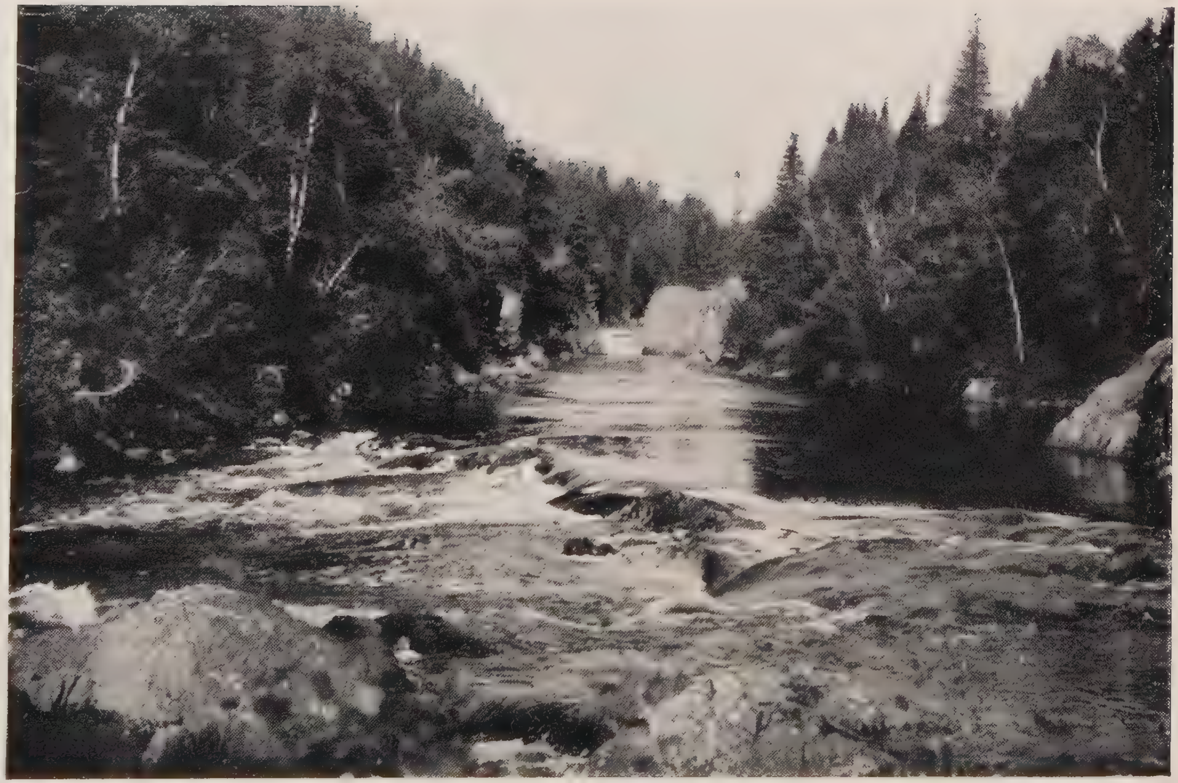


Plate 76

INDIAN BAY RIVER, NEWFOUNDLAND

ONE OF THE POOLS ON THE UPPER RIVER, SHOWING A GOOD EXAMPLE OF A DEEPLY ERODED RIVER.

the horizontal or side position throwing the greatest curve. The angler will be less likely to become discouraged if he makes his first attempt from the horizontal position as nearly as possible, as the curve will then be more pronounced. It is rarely that anglers are met who are able to throw the curve with the rod at an angle of less than forty-five degrees from the perpendicular.

In throwing either to a fish that may be seen or to one that is not visible no change in principle of the cast is involved.

Salmon love to lie in narrow deep eddies or stickles against a ledge past which the river races madly. Unless one is very expert a wet fly is whisked away so rapidly by the pull of the water on the line that it rarely reaches these fish. With the dry fly, however, these places are not difficult because the angler fishes upstream and across and with the curved cast the leader which is in the current and upstream from the fly does not exert any drag until the fly has had quite a long drift. If some obstacle prevents the proper handling of one's rod to throw the curve and forces the cast to be made with the rod in a perpendicular position the loose cast can be very effective when drag must be overcome, especially where the fish cannot be reached from below and the fly must be drifted down from above. The loose cast is accomplished by casting in the ordinary overhead manner with more line than is required to reach the objective and draw the fly back sharply just before it alights. This is not over-pretty, for it causes the leader to fall in rather ragged shape, but until it is straightened out by the current the fly is not greatly interfered with.

The curve to the right.

This cast is not so simple because to execute it correctly the angler must deliberately lose control of the line and therefore it cannot be retrieved if the fly appears to be about to fall improperly. It has, however, the added advantage that it may be thrown from almost any angle, and it calls for nothing more than the ordinary manner of handling the rod except at the moment of the actual delivery of the fly. The usual false casts for measuring distance and direction may be made, but a much longer line than is indicated by the position of the point being assailed must be used. As in the case of all casts, the greater the distance the fly is to be cast the more loose line is to be held in the left hand.

No deviation from the usual false casts should be made except that while keeping the line alive in the air the fly in its forward flight should bisect an imaginary line drawn from the bank to a point in the stream about eight or ten feet from where the fly is to be dropped. It is helpful to imagine that the casting line has neither fly nor leader attached to it and the cast is delivered as if the object was to drop the end of the line at the point where the imaginary line on the surface of the water has been bisected. When it is determined that the line in the preliminary cast is over this point and the final fishing cast is to be made instead of permitting the live line to exert this full energy upon the line released from the hand, this energy is deliberately killed by prematurely delivering the line that is held. This action results in depriving the forward part of the line and leader of the life which, should the line have been held, would have been imparted to them. Thus that part of the line which is free of the top and which is exerting the pull will use up all of the energy and the line beyond that point will die and fall where it is. If the release is timed correctly the energy fails when the line is still in the looped position it assumes in the forward cast before the line has straightened out, and if these directions are correctly followed it may be made to fall on the water as gently as in any other cast. The curve described is greater in scope and hence more effective than the left-hand curve, and I think it is almost as easily executed.

General procedure.

As soon as the fly alights the rod should be held in a horizontal position pointing directly at the fly for as long as the fly is floating naturally. The rod should be held in the right hand alone and the butt should rest against the body. As the fly drifts downstream the slack line should be taken up by stripping it in with the left hand. The action of stripping in the line should be free and determined so as to keep place with the fly, but it is not to be jerked. The recovered line should be held in loose coils in the left hand, where it is ready for the next forward cast. Thus the line which has been gathered will have shortened the casting line so that it may be lifted from the water preparatory to another cast without difficulty.

The fly should not be retrieved until it is below the angler or until it is no longer floating straight downstream but is being swung across the current under the influence of the drag.

When a rise comes, by allowing some of the loose line to pass back through the guides the rod may be raised to the vertical—the correct position as the hook is pressed home.

Once a fly has gone completely under water and become drenched no amount of added dressing will add to its buoyancy ; a thorough drying is the only remedy. A smart rap or two against the waders or coat-sleeve will relieve the fly of most of the water and its restorative treatment consists merely of pressing it firmly between the folds of a handkerchief or better still a piece of amadou. Four or five short air casts should whip the fly quite dry ready for another cast. If, however, the fly still sags on its hackles as it alights it should be discarded temporarily and a new fly used. The drenched fly should be stuck in the hat and after an hour or two's exposure to the sun will be in a condition to be used again. It should, however, receive another application of the mucilin just before it is cast.

ENTR'ACTE

A Critique of Fishing with the Greased Line

By J. W. Hills

I DID not become acquainted with the floating line until late in life. I had been brought up in the strictest orthodoxy of the old school, taught to fish a long line, the more downstream the better, and to keep the point of the rod low as the fly came round. That plan was exciting enough when salmon were taking freely. Its disadvantage, from the fisherman's standpoint, was that he played too small a part after the fly was in the water. Of course, he had to decide, and decide rightly, where to fish, what size and pattern of fly to use, and what thickness of gut. He had to settle how he fished a stream or pool, whether to cast more downstream or less, whether to pull his fly or let it come round of itself, and many other refinements that instruction or experience had taught him. These are matters of moment, certainly, but they are common to all fly-fishing for salmon. Where the old method failed to interest was that, once the fly was cast, you had but little control over its course and behaviour. You had to wait for something to happen ; and this is proved by the fact that, in nearly every instance, when you had a long line out, the first indication of a fish having taken the fly was the running-out of the line. If salmon-fishers will honestly search their souls, they will find that this is true. Therefore, apart from the casting, always a delightful activity, salmon-fishing was not free from monotony.

The greased line changes all this. When you approach a piece of water, you scan it eagerly to see how you want your fly to travel down, and how to make it obey you. Streams vary infinitely, and every kind requires a separate treatment : you only learn by experience. I will take three types to show what I mean. Think, first, of one which runs at a steadily increasing pace from where you are standing to where the fly falls. There you usually can do without *mending the cast*, for the fly will swim down without *drag*. But you must watch the line intently all the time : there are frequent eddies and backwashes in fast water, and you must prevent the line from being swept into a curve or knuckle, or the fly from being pulled quickly across. Your mind has always something to work on. Again, you can catch fish you cannot reach by older methods ; for, by throwing straight over and *mending* largely and at once, you can show them the fly naturally and without pull.

The second example which I take is one where you find slowly-flowing or still water between you and a fast run, with some fish lying in the rapids and some at the edge of the easy water. A very common situation. With the old method, such places were difficult. If the slack portion were broad, you could not keep the line out of it, however long your rod ;

the line sank, spoiling the free run of the fly down the quick stream, pulling it across just where it ought to go slow, and making it hard to fish the near edge properly. Very different with the greased line! After you have cast, you will see it floating lightly on the still water, and all you have to do is to lift a loop of it, downstream in this instance, to give the fly freedom throughout its journey. Note particularly that by *mending* downstream in this way, you can fish a place properly, even across a fastish backwater where the current runs the reverse way. Moreover, by the greased-line method you bring the fly in more deadly fashion over that fatal spot where fast and slow join. You know exactly where the fly is, and when it reaches the edge you draw it slowly up the slack, pulling line through the rings. An exciting and breathless proceeding, often profitable also.

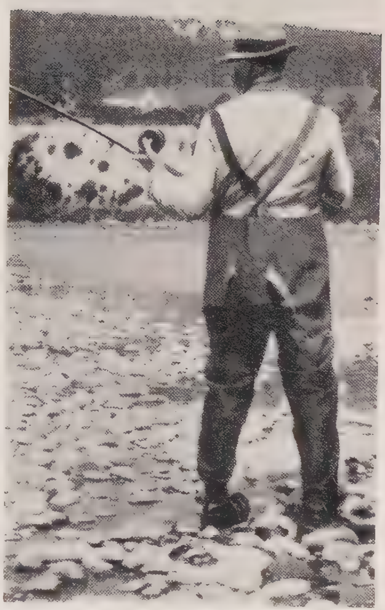
But perhaps the occasion that gives you the greatest sense of control is where the position is reversed, and you have to cast across a broad and tearing stream into slower water you can barely reach. I need not enlarge on the difficulties under the older method, for do not we all know them? And have we not all tried countless devices to overcome them? But the difficulties remain and the floating line is the only way of meeting them. Throw square across, at right angles: when the fly alights, make a big *mend* upstream, pull two or three yards off your reel and throw this slack upstream also: repeat this once or twice. You will then have the joy of watching the fly sidle gently down the easy water, coming in tempting fashion to the fish, moving so cunningly as to deceive the craftiest. To fish such a place properly gives an exhilaration which no angling experience exceeds.

Then again, with the new method, the fly is only just below the surface and the floating line always tells you its position. Your eye follows the line; and since every salmon that takes the fly has to come up to it, you see every rise. This not only adds immensely to the interest and excitement, but enables you to take an active part in hooking the salmon. It also enables you to act in such a way that you miss it. At first, you always strike, and strike too soon, especially as you will be using a light rod and consequently will be carried away by the memories of trout-fishing. You will miss many fish, before you gain wisdom. But eventually you will gain it and you will find that fishing has become more exacting, more enjoyable and more profitable.

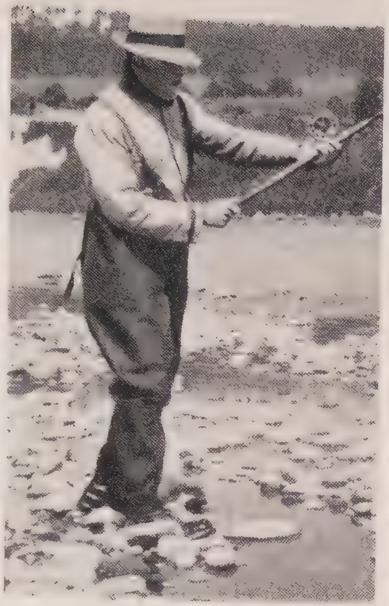
In fact, the floating line has opened a new chapter in angling for salmon. You recognize that each throw is a problem by itself, and you have none of the somewhat monotonous repetition of the older system. The fly moves under the direct control of your hand and eye. You are taking a more active part in the business of an angler, the catching of fish. The pursuit becomes even more fascinating than before, since you yourself have a bigger share in it, you become dominant instead of acquiescent, and you are conscious of a corresponding and deeper appeal to your intellect and emotion.

Plates 77, 78 & 79

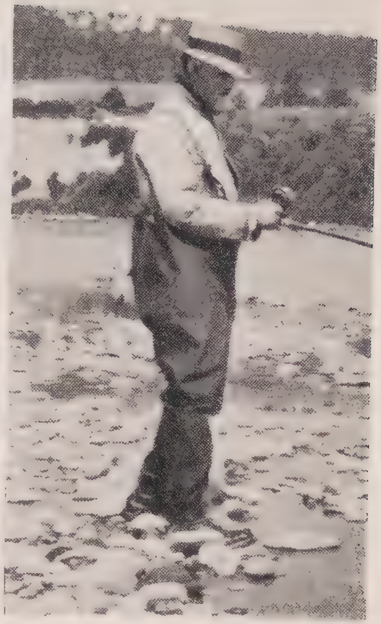
SHRIMP-FISHING



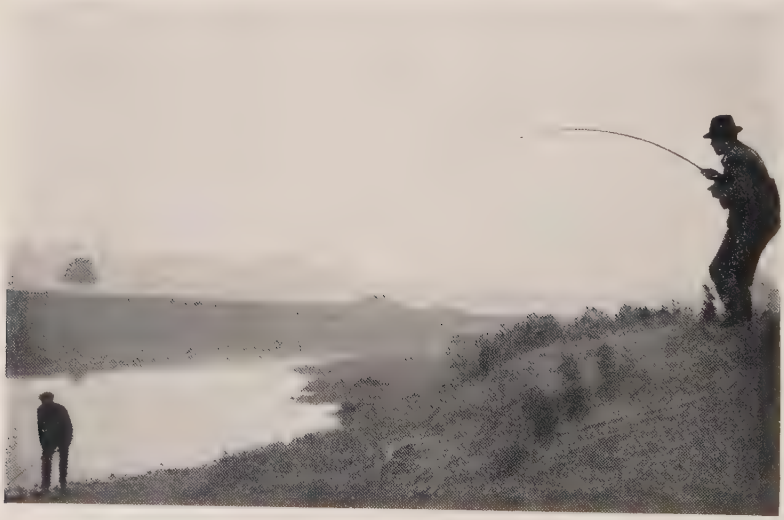
PREPARING TO CAST.



CONTROLLING THE OUTGOING LINE.



RECOVERING LINE—A POSITION THAT AVOIDS BENDING IN AN UNCOMFORTABLE POSITION.



Plates 80 & 81

SHRIMP-FISHING

HOOKED : THE ROD BEGINNING TO BEND.

LANDING A SALMON

BRINGING A SALMON TO A GILLIE BY WALKING INLAND INSTEAD OF BY REELING IN.

CHAPTER THIRTY-SIX

SHRIMP-FISHING

By C. G. Heywood

THE best all-round fisherman I have yet met is also a head gillie, who has had a lifetime's experience on a beat that is regarded as one of the most prolific in Scotland. Few men have handled more rod-caught fish, have seen more landed, or have seen and tried so many variations in angling methods. His opinion, which I know is free from bias and prejudice, is that greased-line and shrimp-fishing provide the finest sport salmon-fishing has to offer. It just happens that both methods are suitable to low-water fishing. On most rivers, as the water drops, the small fly is adopted in place of the usual sizes, 2/0 to 6. This period is the time when the shrimp also does well. If the fly-fisherman meets the new conditions by reducing the size of fly chosen to 9, 10 or even 11, the bait-fisherman obviously ought to employ the same tactics. This was the principle that, in the first instance, led me to experiment with shrimp. Although it appears from the foregoing remarks that shrimp-fishing is a low-water method, it can also be used with success on a long rod and under spate-conditions.

§ 1. *Fishing the shrimp.*

The shrimp used in this mode of angling is a baby prawn, which when straightened out and trimmed, is no longer than one and five-eighths of an inch, from tail to beak. It comes from the Galway coast and is also found off Dorsetshire. Fortunately, it can now be obtained bottled and preserved, of the right shade of red and already straightened ; but, if this particular variety of prawn is unobtainable, ordinary shrimps should be got from a fishmonger, freshly boiled and plunged into salt-water, in order to toughen and redden them, in so far as this treatment can produce this effect.

A shrimp can be presented in several ways, but the most effective, in my opinion, is spinning it. If you decide not to spin the bait, you can fish it with a fairly-long, two-handed and light fly-rod, and you have the choice of single-hook and double-hook mountings.

In mounting a shrimp on a single-hook tackle, you are less likely to damage it, if you use a baiting-needle, inserted below the feelers, to pull the hook-to-gut through, than if you insert the hook-point in the bait and attempt to work the shrimp over the bend. After the baiting-needle has been disengaged from the gut-loop and the shrimp adjusted on the shank, a short length of wire must be used to hold all in position.

The trace should be of gut with a short piece of lead wire coiled round it, to sink the bait. Hold a length of fine wire parallel with the gut, so that there is something solid to wind the lead round and afterwards slip the wire out.

As a shrimp fished in this manner is not spun, a float may be needed to keep it off the bottom, as it is going down the smooth dubs of slack pools. But with this type of tackle, the shrimp can often be dropped into broken water behind boulders and worked on the *sink-and-draw* principle. And where you can command the deep side of a run under an overhanging bank, you can lob the bait upstream, follow it down, in the same manner as the Norwegian fisherman fishes a worm, and pay out line as the unleaded shrimp wends its way downstream and always in advance of the lead, which comes behind it bumping along the river-bed. The weak point about this method is the short distance to which it can be fished ; it is only adapted to the places where there is a long *gutter*, down which the fisherman, by paying out line, can let down the bait. Still, it is a fairly-effective method of taking fish on a long light rod for which two hands are necessary and is a change from fly-fishing.

If you feel a holding of the bait, as though it had got foul of some snag, tighten at once. Do not allow a fish to go off to pouch the bait, as you would do, were you using a worm.

§ 2. *Spinning the shrimp.*

Shrimp-fishing is far more effective, if the distance to which the shrimp can be thrown is much extended by using a light spinning-rod and adding a little weight to the trace. A shrimp or small prawn weighs about one-twelfth of an ounce. In most instances, a lead bullet, heavier than one-eighth of an ounce, would be quite useless for fishing a river of the type I have in mind during a period when it is running at summer-level.

§ 3. *Reels.*

Obviously with so light a bait, the design of the casting-reel and the line are very important matters. Probably the reels, from which such a light bait can best be projected, are those working on the fixed-bobbin principle. With a reel of this type there is hardly any friction on the line, as it merely spills off the drum. But their effective line-carrying capacity is very limited, as I shall explain later.

The next type is one that has a free spool and level-wind multiplying mechanism ; but it must be the best of its kind ! The advantage is that such a reel holds an adequate length of line of the right weight.

Lastly, there are small metal Nottingham-reels, which certainly carry enough line, but demand considerable manipulative skill to overcome their inertia. This is done by a flick of the rod-point as the rod goes forward, which is passed on to the bait ; this in turn gives a pull on the line and thus causes the drum to rotate. It requires considerable judgment and experience to control the spool, so that it does not over-run.

It is the second type that embodies the features I want in a spinning-reel for this work.

§ 4. *Lines.*

Although it is quite possible to land a salmon on the finest of silk lines, the time taken over it prevents me recommending their use. The breaking-strain of a line becomes, therefore, a most important question.

A fine line is far and away the best for the reels I mentioned first, the fixed-bobbin type, because their casting-efficiency varies inversely as the weight and diameter of the line used.

Some time ago, I suggested the manufacture for reels of this type two special lines. One of them level and slightly stouter than usual; this was to be known as ox, eighty yards of which could be put on the spool without unduly filling it. The second was a *beaver-tail* line of which the front ten yards were of a heavier weave than the preceding eighty. The idea of this was to provide a foreline that would stand the extra friction to which the outer end of a line is always subject. Unfortunately, the first hour's fishing with these lines demonstrated their weak point. The friction on the forepart and the stretching made it necessary to break off upwards of five to ten yards; and, as soon as this is done, the line lies too low within the spool to come freely off it, when a light bait is being used. It is possible, with one type of reel, to dismantle the spool, insert a washer, rewind the line and thus force the latter to lie higher up on the drum; but the remaining sixty or seventy yards is not always long enough to cover all emergencies. I have, therefore, not the slightest hesitation in pronouncing against this type of reel and line.

Line-weakness led me to experiment with reels other than the type first mentioned. I was afraid of the line being broken or getting weak without my suspecting it; and I wanted to use tackle that would be stout enough to enable me to bring a salmon in to the bank, so that I could dispense with help and gaff it myself. With the reel of the second, which I have adopted, a line that has a breaking-strain of ten pounds, when it is dry, that is, eight pounds wet; this is good enough for any emergency in salmon-fishing.

§ 5. *Traces.*

For a trace, I prefer the extra fine Killin wire. As a method of attaching a fine line to the swivel at the head of the trace may be useful, a sketch illustrating this is shown in figures 200 and 201. The point of attachment is usually the weakest part; this method, therefore, uses a double strand to take the strain. But the tie ought to be examined and renewed

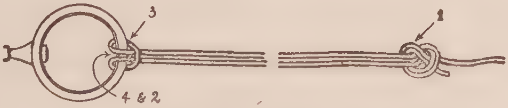


Fig. 200.

One method of attaching a fine line to a swivel.

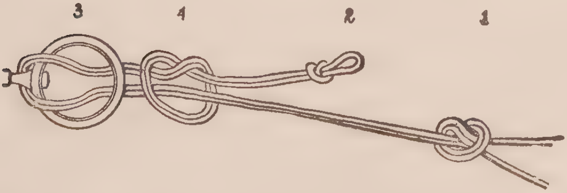


Fig. 201.

Another method of attaching a fine line by doubling it, tying a knot in the end and treating the doubled line as though it were single, so that the strain is taken by four strands.

frequently. The rings of the swivel must be large enough to take the proper size of lead. The type best suited to the purpose is the Hillman lead, because it can be so easily attached and taken off, if another of a different weight is demanded by the force of the current.

§ 6. *Tackles.*

The tackle I have found best is that which consists of a celluloid flange and a swivel fitted to a single-pin mounting ; the flight is one small treble whipped length of double gut, which is attached to the swivel by a ring. The treble ought to be a no. 9 size ; and the barbs of the hooks should be cut close to the point, because fine silk lines stretch too easily to pull home heavily-barbed and rank hooks. Vulcanized rubber bands are a convenient way of securing the shrimp on the pin ; of these I employ two. One is looped round the treble and is brought in a spiral up the shrimp ; the other is fastened round the flange and carried tailwards in the opposite direction. This cross-wrapping of the two bands keeps the shrimp from breaking and the hook is forced to lie straight behind.

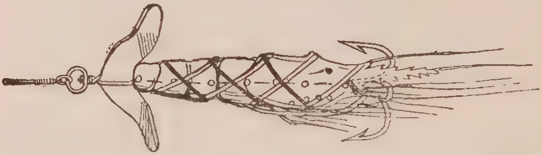


Fig. 202.

Single treble-hook mounting of a shrimp, which is kept in position with a red rubber band.

§ 7. *The rod.*

The best rod for the purpose is either a light one-handed spinning-rod or one that is nine and a half feet in length and weighs about ten ounces ; the latter I find more practical for fishing among bushes and it suits my own method of fishing out a cast. Personally, I recommend the handle to be long and the reel to be fixed on top of it. This enables me to control the rotation of the spool with my thumb, so that the reel can run free ; but I am ready at an instant to throw in the check by pressing on a button, which lies handy to the ordinary position of the thumb.

§ 8. *Practice of spinning the shrimp.*

Fish the shrimp as though it were a sunk fly. Always cast it beyond the lie of the salmon and present it, so that it passes, as far as you can judge, a few inches upstream of the fish and practically at the depth at which it is lying. The factors governing the depth at which the shrimp will fish are the speed of the current, considered in relation to the size and pitch of the propeller at the head of the tackle, the position of the rod-point and the weight of the sinker. You can control the depth by the rate at which you wind in, or by not winding in at all, and by altering the pitch of the celluloid fans. All these things are of the utmost importance, because I am practically certain that many fish take the shrimp, having hardly moved from where they are lying.

The stream is best searched by casting at a steep downstream angle, so that the bait comes across to your own bank as slowly as possible and at a depth that makes it easy for the fish to take. Fish in good lies—at any rate in summer—will not leave them if they can help it; you ought to try, therefore, to put the bait very close to them. Progress down the pool consists of the usual number of casts of similar length delivered at a constant angle across the water, though as soon as I have worked off the broken water into smooth runs, I make a practice of casting alternately downstream, as described above, and of fishing the cast slowly across a known lie and then making a straight throw across, or even upstream, from where I am standing and then wind in fairly rapidly. This will sometimes arouse the exceptional fish that will run, in summer-time, at a quickly-moving object.

Fishing a pool from the shallow side, I prefer to fish out the cast, so that the bait would bump the bottom, if I did not begin to wind in as soon as the line straightens below me. I am thinking, at the moment, of wading to a depth of about three feet six inches in a pool that is deeper beyond me, but shallower inshore. If a cast straightens out without an offer from a fish, I wind up quickly, while the bait is passing over the shallows, because I do not like a fish to follow or attempt to take this part of the pool.

If you are fishing the pool on the deep side, cast much flatter and across the stream and, after winding a few turns to get contact with the bait, stop winding, because the bait is already half-way across. For the last part of the journey across, let the bait actually take out a little line and sink downstream, but not so fast as the current, or else the bait will cease to spin. When the line is right under your own bank, wind it in very slowly, with the point of the rod held almost in the water.

I believe a shrimp is an effective bait at most times and in all seasons, if it is fished with regard to the conditions then obtaining. If fish are in the pools, the variable conditions to be studied are the height, temperature and colour of the water.

Water height. Using a shrimp weighted with an ounce and a half of lead, I have been able to catch fish in spate-water. On the other hand, I have taken fish in water hardly deep enough to cover a fish at all. But the ideal conditions are those of low summer-level, which indicate the use of a fly of size 9 and smaller.

Water colour. I like it gin-clear. The more colour there is in the water, the less salmon take the shrimp. If you cannot see your boots when you are wading knee-deep, do not expect this bait to be of any use at all.

In so far as *atmosphere* is concerned, a bright day and a clear sky, or a fresh wind with cloud is the best. When there is continuous rain, a cold wind from the sea, mist, fog, or on an afternoon that is heavy with thunder-heat, you are unlikely to do much good with a shrimp.

I find an afternoon-sun shining down a pool is hopeless; it pays to wait until the sun has gone below a hill before attempting to fish in the evening. As soon as the glow disappears, exchange the shrimp for a big fly. If you can see the shape of a shrimp, but not its colour, you can be sure it is too late in the evening for this mode of fishing.

By far and away the most important feature, providing water-height is reasonably favourable, is *water-temperature;* and this is a condition that can be met by the angler by choosing the time to fish. My own records show that certain times of the day are effective for the months in which shrimp-fishing is practicable :

May : *Between 11 and 3 o'clock in the afternoon.*
June : *Between 9 and 1 in the morning, and 8 and 9 in the evening.*
July : *Between 5 and 7 a.m., and 9 and 11 in the evening.*
August : *Between 8 and 11 a.m., and 7 and 8 in the evening.*
September : *Between 9 and 12 a.m., and 7 and 8 in the evening.*
October : *Any time up to about 2 p.m. ; but, although fish take freely in this month, they are hardly worth catching.*

The worst taking-period I have found to be from the second week in June to the end of July ; though a change of wind and a rise of water sometimes produces a prolific day.

Wind is a nuisance with such a light bait, from the casting point of view, but a downstream wind, if one can wade out far enough and fish further downstream than usual, is an advantage, because it increases the fishing-area and makes it possible to fish water that without wind would be dead. You can use the wind-ruffle to spin the bait. Many fish which are potted will come on the take under the influence of a ruffling wind—conditions which make fly-fishing very unpleasant.

As to striking, the stretch of the light line does not help penetration. To ensure success, fish with as little belly as possible and also keep the hook-points keen by the use of a carborundum-stone. Keep a *tight* line from the moment you feel a fish is on.

Playing the fish is probably the greatest excitement that shrimp-fishing has to offer, owing to the lightness of the line used. A little thought will reveal the fact that a light line definitely precludes anything in the way of pulling a fish upstream to land him. I have lost so many fish experimenting with light lines, that I am able to say these light lines force you to keep below the fish all the time. If you are fishing from the shallow side of the pool, you can so work on a fish from below, that it beaches itself above you. Do not reel up. Walk inland. Of course, if you are fishing off the bank on the deep side, you can only land a fish with the assistance of a gaffer, and even then you should keep below and let the fish fight its way in the stream above you.

I realize this does not attempt to survey all phases of shrimp-fishing, or light-tackle methods, but I think the shrimp is one of the few, if not the only bait, which, if selected small enough, can be fished alongside, behind, or even in front of a fly, without detriment to the fly's prospects. During August of one year, when the water was low, one pool yielded us fifty fish, of which half came to a no. 11 size fly and half to an inch-long shrimp. It does not appear from this example that shrimp-fishing spoilt the pool for fly-fishing. I hardly think the same thing would have occurred had we mixed fly-fishing with prawning, worming, or spinning an artificial bait.

CHAPTER THIRTY-SEVEN

SCALES: THEIR FORMATION AND USES

By W. J. M. Menzies

SCALES of fish are, in some respects, not unlike hair in the case of the human being. Formed in the skin their usefulness is partly protective and partly indeterminate. In fish it is true they may represent the highest form of development and in the human, if our accepted ideas of progress be correct, they may be but the degenerate remains of an earlier and more ample covering. In both cases they are developments which take their origin in the true skin and are very obvious externally.

The resemblance, however, is not much more than superficial, and although both scales and hair are highly specialized parts of the anatomy their origin and subsequent growth are very dissimilar.

The small fish is not hatched from the egg with a covering of scales or even with a partial covering. At the time of emergence it is entirely without them even in the most rudimentary form. Its skin, completely naked from head to tail, is smooth and unbroken and has yet to form the pockets in which the scales will appear and grow. The actual mode of scale development and growth is perhaps a subject for the physiologist rather than the general reader, and, indeed, it is a subject that until quite recently has not received the detailed investigation which it requires. Even at the present day our knowledge, and especially that part of it which concerns the ultimate degeneration of the scale at the time of the maturity of the fish, is by no means complete.

Mr Geofrey Paget[1] has shown in detail how the growth starts in the young fish and the manner in which it proceeds in after-life, and to him we are chiefly indebted for the knowledge which we now possess. As I have just stated, the salmon when hatched, the alevin as it is then called, has no scales, but it is not long, some four to six weeks or so, before the first rudimentary beginnings in the skin may be found by means of microscopical examination. Minute as are these beginnings, they are by no means uniformly distributed throughout the length and breadth of the fish but, at first, are confined to a comparatively limited area. This area, situated below the dorsal fin and along the lateral line, is fairly rapidly extended towards head and tail and second and third rows of scales immediately above and below the first quickly follow. The commencement of growth depends more upon the length of the fish—about one and one-quarter inches—than upon date. It is to be observed in early spring and in the course of the summer the fingerling has completed its coating.

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[1] Paget, G. W., *The Scales of some Teleostean Fish*, 1920.

The actual development of each individual scale is a complicated process which takes place within the skin itself. Growth commences in the form of a minute platelet in the dermis, that is, in the true skin which in turn is covered by the softer external covering of the epidermis. As this platelet develops it pushes and elbows its way, as it were, until finally it almost breaks through the dermis and stretches the tougher outer layer into the epidermis. At the same time it enlarges the space which it occupies in the skin in the other direction and forms for itself a complete pocket. One end of the pocket is based near the inner side of the dermis and close to the muscle while the other in later life extends far into the epidermis and the protruding part of the scale is enclosed in a more or less elastic close-fitting covering. It is this last stretching process of the exceedingly thin membrane which in the larger fish gives the false appearance of the exterior portion of the scale being free and exposed. Such appearance is illusory, however, as will be very easily discovered if a careful examination be made of the skin of a fish with a needle, the point of the blade of a knife, or some such instrument. It will then be found that the apparently free portion is in reality by no means free but is entirely surrounded both back and front by a cutaneous covering which emerges bulbous-like from the original smooth covering of the outer surface of the fish.

The scales themselves are relatively thin, flexible, almost colourless plates, which by reflected light have a somewhat dull appearance and by transmitted light show a series of what appear to be concentric lines of which many are incomplete and only a few form an ellipse.

Section cutting and microscopic examination has shown that the scale is not a homogeneous whole but that it consists of two layers. The one, and the lower, layer when the scale is in position on the fish is of a fibrous nature and, if viewed under the microscope, is seen to consist of a series of layers of fibres or rods not arranged in any one direction or laid down in any series of rectangles in regular interlacing but running across and through each other in many directions. Nature in her wisdom has arranged them as seemed best and, as is usually the case, has made the work uncommonly perfect so that a maximum of flexibility with a minimum of liability to crack or break is obtained. The upper, or outer, layer of the scale is of very different material and consists of a substance, hyalo-dentine, much harder and even to some extent, especially when dry, brittle. Allied, as its name applies, to the ordinary dentine of teeth, hyalo-dentine alone, unless in relatively thick and cumbersome plates, would be very liable to crack and break up. If sufficiently thick to withstand the ordinary risks of damage it would be so strong and unyielding as not to conform with the movements and flexions of the muscles and body of the fish. Closely combined, however, with the comparatively soft, admirably flexible and relatively tough layer behind, the dentine portion of the scale can still give the necessary stiffness to the whole without in itself being either too heavy, too unyielding, or unduly liable to fracture and destruction.

At the time of the completion of the scale coating when the little fish is some three or four months old a certain and well-defined number of platelets are required to cover the whole body. To maintain this entire investment as the fish grows and as the surface area of the body increases the scales must either become more numerous or each of those already in position must be enlarged individually. Fortunately, as I shall show later, nature has arranged that the latter, and not the former, method is adopted and the increased area to be covered is met by an increase in individual scale size. The number of scales, unless by reason of accidental injury, remains constant but the total area covered by them and the area of each scale by itself is greater.

In the normal scale the enlargement is not uniform in all directions. This is partly owing to the shape of the scale itself and of the fish and partly, apparently, is in some measure due to the fact that a portion, the front or anterior portion in practice, is comparatively deep-seated in the softer tissues of the skin and that the other portion, the hinder or posterior part, is more exposed, practically on the surface and covered only with the very thin layer of dermis and epidermis.

A typical scale taken from anywhere along the side of an adult salmon will be found to be a flat oval object apparently divided into parts roughly amounting to two-thirds and one-third respectively of its total area. If the scale be clean and free from encumbering mucus and dirt the larger portion will be seen to carry the lines to which I have previously referred and the smaller to have no definite form and to be a mass of the scale material without any marked differentiation. The former, and larger, part grows in the inner pocket in the skin and is the part which is of value for examination under the microscope while the latter, and smaller, part of the scale is the so-called exposed portion, although as we have seen it is not really exposed. The naked eye appearance of the latter is confirmed by examination under a lens and it is found to be without any lines or other definite marks and is of no value for scientific purposes when the age or growth of the fish is under consideration.

A typical scale from the side of a salmon is oval in outline and, while not in any way comparable with the large scales of some of the carp family, for instance, is not a small object. The size and shape of the scales, however, vary considerably with the position which they occupy on the body of the fish. Along the sides the largest specimens are to be found immediately above and below the lateral line and in the middle region of the body; those farther removed from the lateral line, both towards the back and towards the belly, become gradually smaller as do also the scales which grow nearer to the head and the tail than to the centre of the body. In fact, nature has so adapted their form and shape as to fit most conveniently and comfortably into the curves of the fish at the point where they are situated and to yield most readily to the flexions of the whole body and the movements of the muscles underneath the skin during the motions of swimming. On the actual ridges, as it were, of the body, the dorsal and ventral contours, and immediately on each side of them and again right in the front of the body, just before the head is reached, as well as in the caudal region the scales are minute and are quite irregular in shape as the exigencies of these situations necessitate. Similarly very small scales of quite strange and unusual outline are to be found arranged round the nooks and corners of the fin bases.

As I have previously stated each individual scale increases in size as the fish becomes larger. The point of origin, consisting of the two layers of hyalo-dentine and of fibrous matter, takes the form in surface view of a plain platelet of minute size. From this platelet the fibrous layer is gradually pushed out equally in all directions and on it the specialized cells which are devoted to the formation of this part of the organism deposit the dentine layer, not, however, in the same flat plain as the dentine of the nucleus nor in the amorphous manner of the softer stratum, but on a very definite plan. In a section cut right through the scale the dentine is seen to be laid down after the manner of the ridge and furrow which is so well exemplified in the orderly arrangement of heights and hollows in a newly ploughed field. When viewed by transmitted light the hollows are naturally the more transparent and pass the greater quantity of light ; the heights, being thicker and consisting of a greater amount of material, are more dense and seem to be dark in comparison with the more translucent hollows. In fact, unless one were acquainted with the actual structure of the scale the ridges might be taken for lines on a plain lighter ground.

The original platelet laid down in the young stages is roughly circular and at first the scale growth is in this shape. The ridges are practically continuous and are set as the complete circumference of the figure. As both the scales and the fish become larger, however, the increase in length of the animal, rather than the vertical height from ventral to dorsal contour, becomes the dominant fact and to this the scales have to conform in their endeavour to accommodate themselves most advantageously in the general economy. They therefore become laterally somewhat compressed and gradually assume an oval instead of a circular outline.

From the beginning of the scale origins, dotted about as minute points scattered evenly throughout the skin, the growing scales gradually pass through the circular shape to the final oval form reached when they make a complete scaly covering overlapping each other and entirely enveloping the soft tissues. As growth progresses and each scale begins to trespass on the ground of the neighbouring scales so is the front edge depressed deeper into the skin pocket and the hinder, or so-called free or exposed, edge elevated more and more above the original level of the skin surface. Finally the arrangement closely resembles that of the tiles on the roof of a house, but instead of the general layout being from the ridge, or the top of the back, downwards it is from the head to the tail. Were it otherwise the water during the progress of the fish would not flow evenly over the surface of the body but would necessarily get in under the outer parts of the scales and ‘ ruffle ’ them.

Whatever may be the primary purpose of scale ridges, and it would seem that the mechanical strength and efficiency of such an arrangement must be much greater than a similar area constructed of the same material with a plain surface, a secondary result is that man has been able to turn their arrangement to his own needs after centuries of indifference followed by many years of study and experiment.

Even a cursory glance at the scale of an adult salmon when held up and viewed by the naked eye reveals that the ridges are not uniformly distributed throughout the whole of the scale, but that they are alternately set closer together and wider apart so that an illusion of light and dark bands on the scales is produced.

At this date it is almost unnecessary to trace, in detail, the history of the discovery and elucidation of the meaning of these bands so often has it now been done. Sufficient, perhaps, it may be to say that the credit of the original discovery seems to belong to one Leuwenhoek, a Dutchman who lived towards the end of the seventeenth century, and who found the conditions to exist not in the scales of salmon or of a purely marine fish but in those of the common carp. As I have pointed out elsewhere,[1] eels were the next choice of a further investigator (E. Baudelot, 1873) and a most unfortunate choice it was. The scales of the eel are not only exceptionally difficult to extract from the skin of the fish, but, when found, are not by any manner of means easy to read. Also, even when the clue has been discovered, a number of corrections have to be made. The age of this fish when the first scale is laid down is about three years and there is a very great difference in the time of their formation in different parts of the body.

Modern scale reading as an exact science may be said, however, to have been started in 1904, when Stuart Thomson[2] undertook the task of interpreting the markings on the scales of cod. He found that they responded to certain laws and that the age of the fish could be read with a deal of facility and accuracy.

Henry W. Johnston applied the same method to the scales of salmon and found an equal response in them, though, owing to the dual life of this fish in fresh and salt water, there were complications which at first were not easy of interpretation. Marking work, however, carried out by Mr W. L. Calderwood and others, helped to elucidate the obscure points and to prove up to the hilt the original suggestions, and in course of time a complete basis of fact and proof of theory was established. Mr J. Arthur Hutton has done much work to interest scientists, anglers and ‘ the man in the street,’ and I, in some cases in collaboration with Mr P. R. C. Macfarlane, B.Sc., have written many papers on the salmon of Scotland and of other countries. Mr G. H. Nall has also devoted some of his numerous papers to salmon but has specialized more particularly in sea-trout and has recently produced a monograph on the latter fish.[3]

As we have seen, fry start their scales at a length of about an inch and a quarter in the form of a simple flat plate which in after-life is commonly referred to as the scale nucleus. Subsequent scale growth takes the form of ridge and furrow, at first roughly circular, complete and concentric with the nucleus. Later the ridges, confined to the anterior part of the scale, are incomplete and oval instead of circular, but are still arranged symmetrically about the point of origin and the earlier circular ridges. Once started scale growth is continuous so long as the fish continues to feed and its body to grow but, once feeding ceases and growth for the time being is finished, the scales also cease to add new material to their structure. Indeed, they may then reverse the former process and return certain of their constituents to help to maintain the general bodily needs and energy.

Before continuing with a description of the appearance and interpretation of the markings on salmon scales it may be as well to give a short description of the apparatus and methods necessary for those who wish to do at least some elementary examination of scales for themselves.

If it is desired to ascertain the age of a number of fish at leisure the most convenient mode of collecting the scales is to scrape off a number with a rather blunt knife from the shoulder of the fish, i.e. just above the lateral line and slightly in front of the dorsal fin, and place them in an envelope. It is sufficient merely to wipe them off the knife on to the sides of the envelope and allow them to adhere to the paper. If the collection is to be at all extensive, it is better to use specially made small envelopes with spaces printed on the front where the length and weight of the salmon together with the date and place of capture may be recorded. If the collection is being made for any special person, such, for instance, as myself, who is accustomed to deal with large quantities of scales, envelopes made for the purposes will probably be obtainable from that person and these will have flaps without gum to allow of easier handling in the subsequent stages.

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[1] *The Salmon.* G. Blackwood & Sons, Ltd.

[2] *The Periodic Growth of Scales in Gadidæ as an Index of Age.*

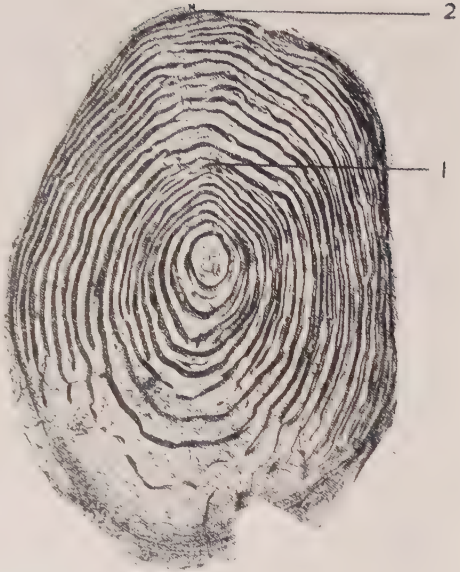
[3] G. H. Nall. *The Life of the Sea Trout.* London, Seeley Service & Co., 1930.

If only one or two fish are being investigated it is easier to extract a few scales individually with a pair of tweezers, or by inserting the point of a knife blade into each scale pocket and extracting the scale with the end of the finger. The scale should then be cleaned by rubbing between finger and thumb, or laid on the palm of one hand and rubbed with a finger of the other, to remove any adhering mucus and dirt and either placed firmly on a piece of tough paper to dry or, preferably, pressed directly on to a microscope slide and there allowed to adhere and dry. In the more wholesale manner of collection, if I may be allowed so to describe it, the cleaning is not possible at the time the scales are taken but must be effected afterwards by soaking and then rubbing or brushing with a stiff brush. If moderate care be used in the collection, however, and especially if the bulk of the mucus be scraped off the surface of the body at the required point by a sweep of the knife towards the tail before the scales are taken, and no extraneous dirt be included it will be found that the majority are quite clean enough without further preparation to allow of sufficient examination for simple age determination. If, however, it is desired to photograph any particular scale a great deal more care and trouble is required and not only must the scale be soaked, rubbed and brushed, but it is also of great assistance when removing the smaller bits of foreign matter in the final clean up, if the scale be held at the point of a pair of tweezers and then washed from a wash-bottle. The surplus water may then be shaken off, and the scale pressed firmly on to a glass slip and placed to dry in a cupboard or other place where dust and dirt will not settle on it.

If the scale of an adult salmon be held up and examined by the naked eye, by transmitted light, various bands may be discerned and an expert may even be able to say roughly the age and whether it has spawned or not. A small pocket lens such as is used for examining linen or botanical specimens is an aid in revealing more detail, although personally I have not found its use entirely satisfactory. There are difficulties in getting the light exactly right and I find accurate focusing is not easily effected.

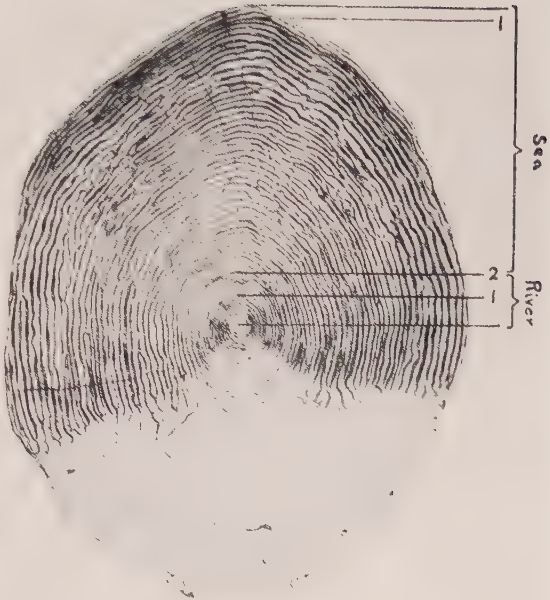
For any sort of serious work a microscope is an absolute necessity, though it need not be either an elaborate or an expensive instrument. High power, and the consequent very fine focusing adjustments, are not required, and indeed the former is definitely detrimental. For large scales an objective with a focal length of three or four inches, dependent

Plates 82 & 83



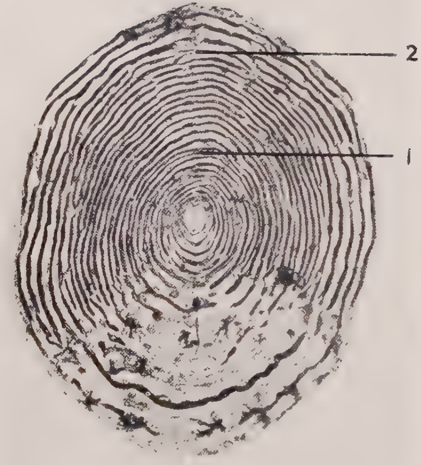
SMOLT

5 INS. LONG. ABERDEEN DEE.

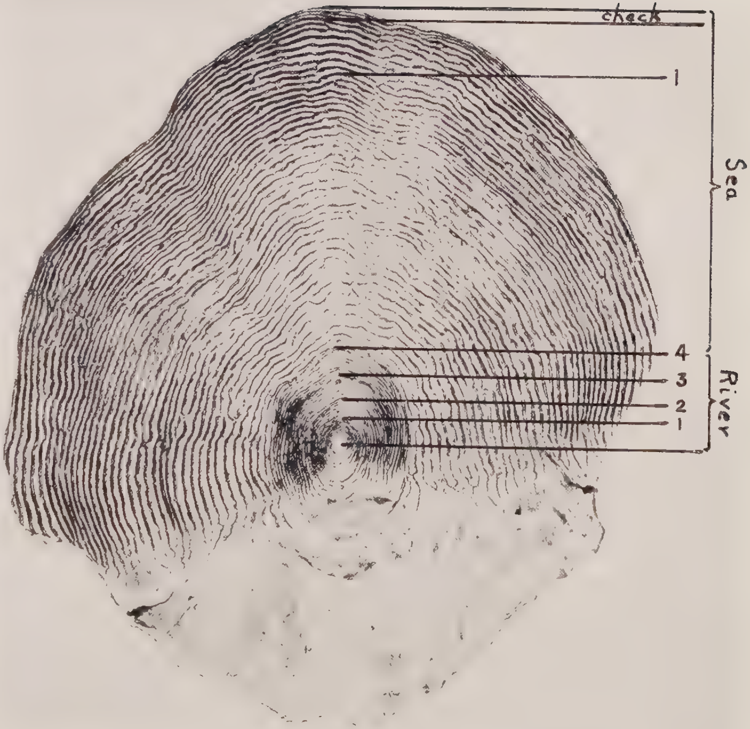

1
Sea
2
1
River

GRILSE

2¾ LBS. : 52·5 CM. : ABERDEEN COAST : 18TH APRIL.



HATCHERY SMOLT


check
1
Sea
4
3
2
1
River

GRILSE

6 LBS. : 24·5 INS. : GRIMERSTA : 16TH JULY.

Plates 84 & 85

upon the length of the tube, is necessary if the whole scale is to be included in the field of vision without movement. A two-inch objective for smaller scales and one of two-thirds of an inch for use on the central portion of the scale, and for detailed examination in doubtful cases, complete the equipment. It is also of advantage to have eye-pieces of two different powers. The stand itself may be of the most simple type; a diaphragm below the stage may be of use occasionally in adjusting the amount of light which is allowed to pass, although it is by no means necessary, and a fully mechanical stage allowing of movement in all directions is sometimes a convenience, although much work may be accomplished quite satisfactorily without its aid. As a matter of fact, my own microscope has neither of these refinements, for the diaphragm I removed, and when one does a great deal of work and is in constant practice there are certain time-saving advantages in being without the rather slow movement of the mechanical stage. Personally, I prefer a binocular instrument; it is perfectly satisfactory at the low powers used, and seems to me to permit more easily of a close and comprehensive examination with the least amount of trouble and eye-strain. It is perhaps unnecessary to specify any particular maker since all construct instruments of the required type and one may be obtained at a most reasonable price second-hand. As with many other things, the best lenses are the most satisfactory in use and are not to be compared with an inferior article. While, therefore, some economy may justifiably be used in the purchase of the stand, only first-class lenses by a really reputable maker should be considered and more especially if photographs of the scales are desired.

For work on a large scale a projector of some sort is almost a necessity. By its use the operations are greatly facilitated, speed is attained and, if two workers are co-operating, consultation and discussion can be carried on more easily. If scale measurements are to be made, from which the length of the fish at various stages of its life can afterwards be calculated, a projector is of much greater service than a micrometer eye-piece.

Various projectors are on the market, but again quite a simple instrument will do all that is necessary. The vertical type in which the image is projected downwards is perhaps the easier when measurements are made, but the horizontal is certainly more handy in general management and for placing and removing the scales themselves. Rather less preparations are also required in the latter type for excluding, or reducing, extraneous light, and on the whole I think it is to be preferred.

The illuminant is invariably electricity, and if a supply from the mains is available it is both simple and economical. I would not recommend, however, an arc lamp as it is a little difficult to control and generates a great deal of heat. An arc in vacuum lamp, such as the Ediswan Pointolite, although involving the use of a special resistance, is infinitely to be preferred. If a mains supply is not available satisfactory service, although naturally on a reduced scale, may be obtained from special sets supplied with current from accumulators.

Little description is required here of the actual manipulation of the scales whether under the ordinary microscope or in a projector. A very little practice will soon make anyone acquainted with at least the broad outlines of the most favourable technique. Under the ordinary microscope manipulation of the mirror to get the light to strike the scale at the correct angle will do much to help to intensify the different values of the markings on the scale surface and especially is this the case when a spawning mark is present. With scales on which the reading is not clear a variation of the angle of the mirror and change of direction of the light from side to side will often be of most material help. In the case of a projector such variation is not possible but care must be exercised in setting the condensers and diaphragm so as to get an even supply of light over the whole field without prismatic effect. It is as well also not to have the light too strong.

For photography a simple camera body attached to the end of the projector is all that is necessary. A medium yellow light filter and a fine ground glass screen are of immense service in the lighting system. Orthochromatic backed plates should be used and the length of exposure required can only be a matter of trial and error, since it necessarily varies with the intensity of the source of light.

As we have seen earlier in this present chapter, the scale growth starts in the form of a simple plate to which are added a series of ridges and furrows at first concentric and later, although still growing in the same orderly arrangement, in the form of an incomplete ring. If we examine the scale of a smolt (pl. 82), we find that these ridges and furrows, which appear in the form of alternate dark lines and spaces when viewed under the microscope, are not at all evenly spaced out, but that there are certain groupings. Bold and distinctly constructed, at first the ridges are clearly distinguishable the one from the other while the furrows are comparatively wide. After a time, however, each ridge is quite evidently not so far from its neighbour as in earlier life, and the ridges also are not quite so strongly depicted. There is first the zone, or band, of widely spaced, clearly differentiated ridges, and afterwards a narrow and much more closely spaced band forming a dark mark on the scale when viewed under, say, a two-inch objective. A higher power, such as a two-thirds-inch objective, shows up the structure in greater detail and enables one to examine with more precision the exact spacing, form and direction of the various ridges, but under it the lighter and darker zones are not exhibited in such great contrast.

The significance of these variations in the growth and appearance of the scale is not on the surface evident, but by means of much painstaking research and work in laboratory, at the riverside and on the sea, extending over very many years it has been elucidated and is now very well understood.

The whole of the changes shown, and the entire success of scale-reading as a means of tracing and determining the life history of salmon, and of other fish, hinges on the fact that scale growth is correlated to the body growth of the fish and responds directly to the stimulus of favourable and unfavourable places and seasons, so that it is a complete and indelible index of the bodily happenings.

During the course of late spring, summer and early autumn conditions for growth are good. Temperature is genial, all water life from the smallest forms upwards is abundant, the larder is consequently well stocked, and the activities of the fish respond very markedly to the temperature. The fish feed greedily on the store provided for them, the body reacts

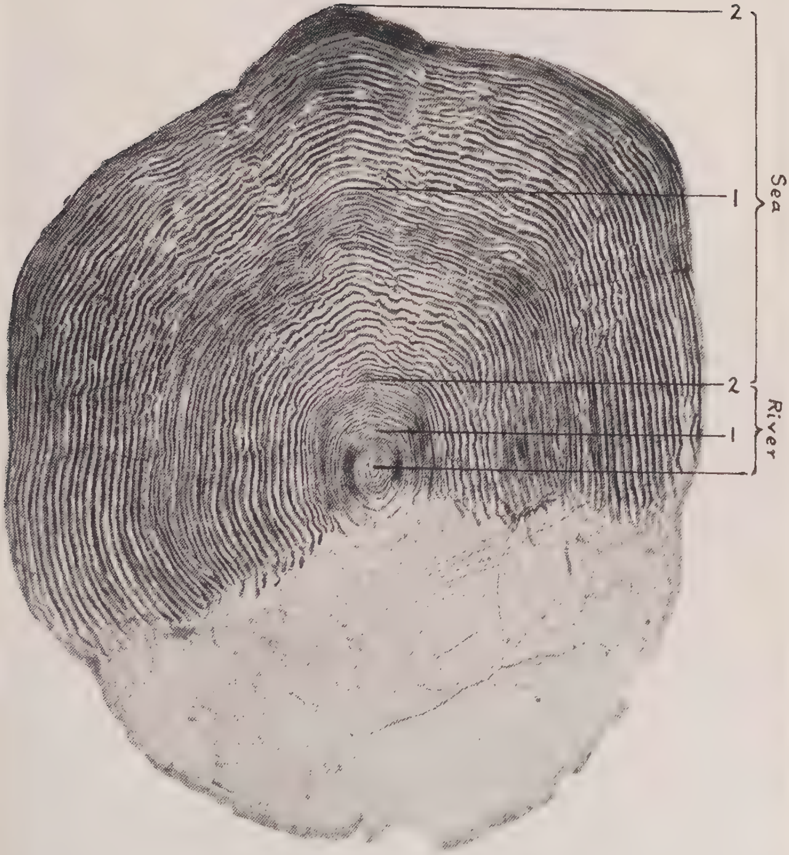
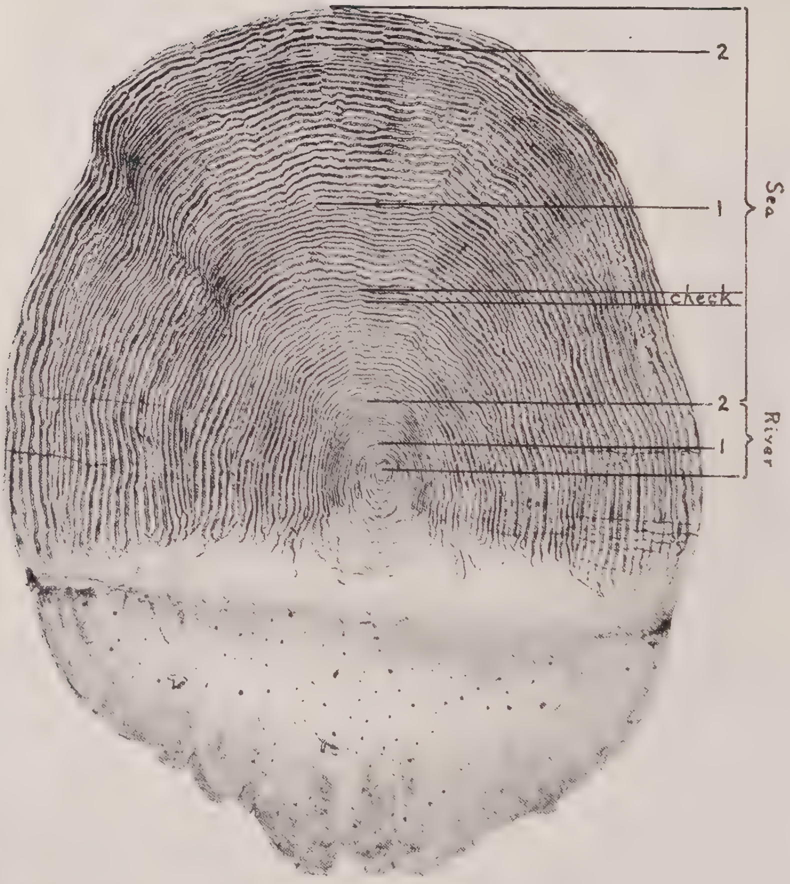

2
1
Sea
2
1
River

Plate 86

SMALL SPRING FISH

9 lbs. : 76 cm. : forth : 20th april.


2
Sea
1
check
2
River
1

SMALL SUMMER FISH

11¾ LBS. : 31·25 INS. : MOISIE (E. CANADA) : 30TH JUNE.

correspondingly and at the same time the scales, to compete with the rapid expansion of the surface which they have to cover, grow rapidly also.

The scale fortunately when under the necessity of increasing in size quickly does so not merely by increasing the number of ridges and furrows which are laid down but also by an increased width between each ridge. It is as if the cells which form the scales were using their greatest endeavours and were distended in their efforts to cope with the situation. In consequence of the relatively considerable width between the ridges a comparatively large amount of light is passed freely and with little or no obstruction. The aggregate effect is that of a comparatively light band round the anterior portion of the scale. In early life during residence in the river the ridges may be completely, or partially, continuous round the posterior, or exposed, portion of the scale also, but even at this period the effect of light and shade is not so clearly shown on this part. In later life no ridges are formed on the posterior portion and, in consequence, it is entirely valueless for the purposes of age determination.

As autumn merges into winter so does the fresh-water food supply dwindle until finally it either dies out or retires into winter quarters until once again stirred to activity by the rising warmth of the coming spring. Temperature alone would also appear to play some part in the feeding habits of young salmon, and, while on the warmer days of winter they may feed as opportunity offers for a short time about noon, on other occasions when thermal conditions are less favourable they may refrain from food entirely.

As the grosser feeding habit of summer gradually tapers off to the less ample meals of winter so does the rate of growth decrease in corresponding proportion. During the depths of the winter the food taken may well be not enough, or at the best not more than enough, to repair the wastage inevitable in maintaining life and such limited activity as may then be indulged in. Active growth is replaced by a passive state in which weight may actually be lost although length of necessity must remain constant. At the end of the coldest period, when the first feeble effects of the returning warmth are felt, feeding slowly increases and growth may again start and continue as a sort of inverted reflection of the decelerating process of the early winter. It is gradually speeded up until finally it once again attains its fullest activity.

During the slowing down and speeding up of the feeding habits scale growth corresponds and with the more restricted area to be covered produces a more restricted result. The ridges and furrows instead of being widely spaced and bold in outline become thinner and closer. The band, or zone, which they form, the so-called winter band in contradistinction to the summer band as the widely spaced zone is named, when viewed under the microscope appears dark and narrow and in marked contrast to the wide and light appearance of the other part of the year's scale growth.

Throughout life, therefore, or during the part of life in which body growth is made, the scale growth registers this alternation of rapid and slow increase, of light and dark zones, of summer and winter bands. In plate 82, a photograph of the scale of a two years old smolt just at the end of its second slow growth period, I have marked the points which are essential to its correct interpretation. At first we have the original platelet, or nucleus, and then the zone of rapid growth, which terminates somewhat abruptly, as if no winter feeding had been indulged in, and completes the first year of life. Thereafter follows a similar light zone and a dark band of finer ridges, indicating the end of a second year. At the stage when the scale was taken there is no means of determining whether the fish was a parr or a smolt. The assumption of the silvery dress, and the outward manifestation of the preparation for sea-life, has no reflection in the scale growth or the scale form. The silvery coat has its origin solely in the skin and depends for its effect on the deposition of a certain substance, called guanin, in such a way that light is reflected and the underlying spots and colours of the parr stage are masked and hidden.

Should a scale be taken and examined from a salmon at a stage later than that of a smolt, however, there can be no doubt as to the age at which the smolt dress was assumed and the migration to the sea begun. And for this reason. The food supplies available in the fresh waters are infinitely less plentiful than are those available in the seas and oceans, and salmon are essentially opportunists ready and willing to consume all that comes their way which is within the compass of their capacity.

Brought up, as it were, during their youngest stages on the comparatively limited diet of the fresh-water their growth is slow indeed in comparison with that which is made once the ocean feeding grounds are attained. The faster the body growth the bolder are the scale ridges, and the transition from the one environment to the other is as clearly registered on the scale as if it were recorded in a diary. There appears to be little or no intermediate stage nor, so far as experimental evidence goes, is this to be expected. The salmon smolts once they have left their temporary gathering ground either just above, or a short distance within, tidal limits do not tarry in their journey down to salt-water. They press on with the ebb tide right through even a long estuary such as that of the Tay, up which the tide runs for a distance of approximately forty miles. They are evidently prepared for the change externally, and one cannot but suspect that there must be some internal preparation also for the very violent alteration of the salinity of the water in which they live. Once prepared they make the change without delay, and the change in feeding habits and in food supplies is necessarily equally abrupt and is shown on the scale in a corresponding manner.

The scale ridges formed during the fresh-water life although differing in appearance between summer and winter also differ markedly from those formed in the sea. At all periods of the year the marine portion of the scale carries much stronger ridges and much wider furrows than does the part formed during the parr life. So great is the variation that the one can never be confused with the other. The marine life and the marine scale formation is a different class of thing altogether, and perhaps a glance at plate 83, which is a photograph of the scale of a grilse, is more illuminating than a great deal of descriptive matter. On this scale is marked the preliminary two years of parr life, and then the succeeding summer, winter and summer of sea feeding. Under the higher magnification employed for plate 82 the parr scale assumed an almost illusory size and importance. When, however, we have the lower magnification and greater scale area of plate 83 (and later in plate 85 and onwards),

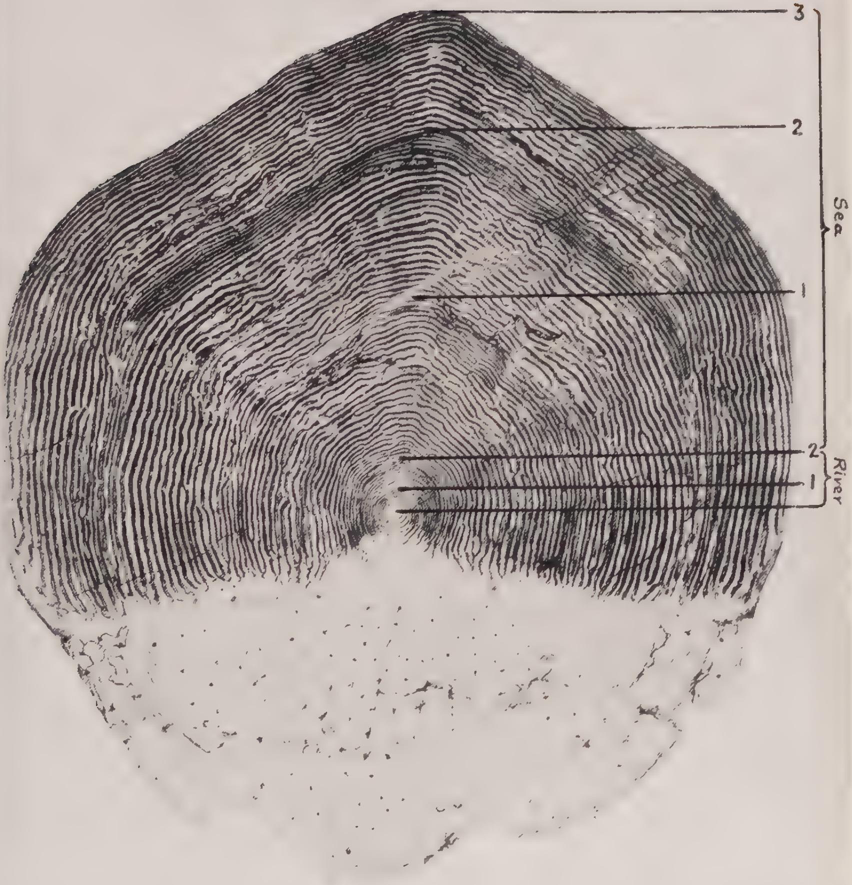

3
2
Sea
1
2
River
1

Plate 88

LARGE SPRING FISH
16½ LBS. : 89·5 CM. : SPEY : 17TH APRIL.

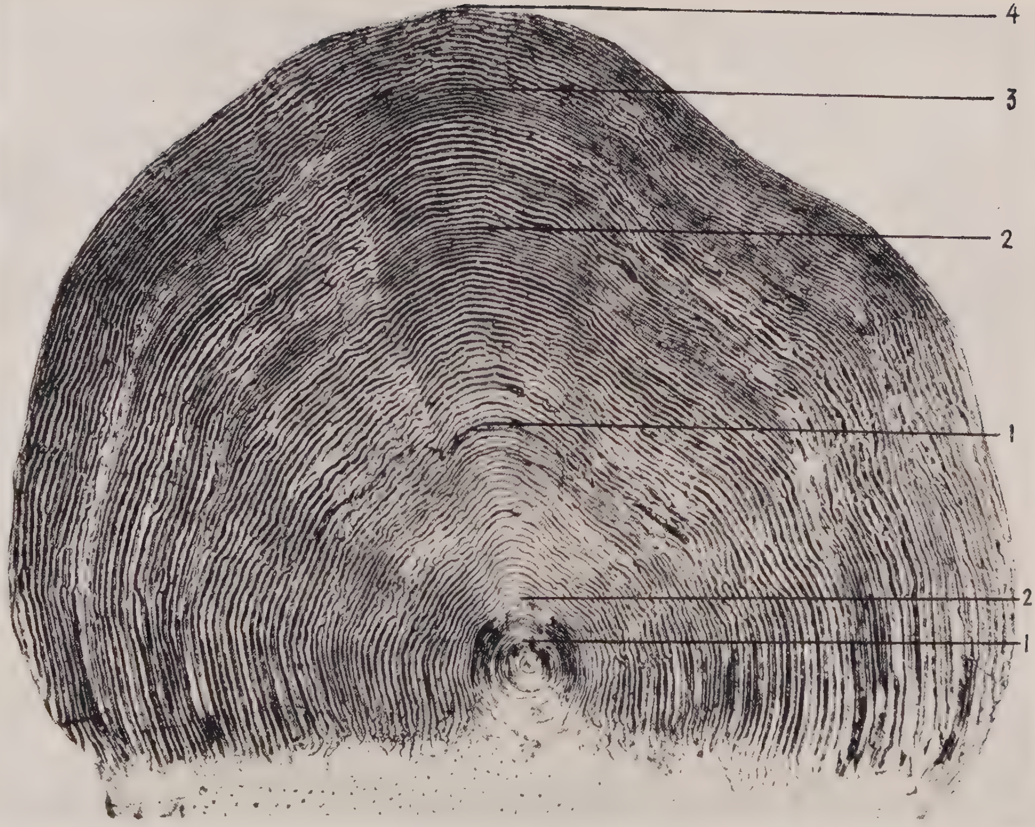


Plate 89

VERY LARGE SPRING FISH

it is more easy to recognize the relationship of the two areas, the river and the sea, in the growth economy of the fish and the difference in the food supplies and the growth rates of the two places of residence. Even to one unaccustomed to view such objects the variation between the river and sea growth must be quite clear and plain even if the divisions between the summers and winters may not be so readily recognized. The river life appears as a central, often darkened, area with, it almost seems, minute ridges in contrast to the bold clear growth of the subsequent marine life.

It may fairly be argued that this plain statement of the apparent connection between cause and effect is all very well, but that in very many other cases equally evident, and almost stronger, circumstantial evidence has been proved to be wrong when the matter under enquiry has been probed to a deeper stage. In the case of salmon scales, however, besides the analogy of other fish we have the very definite evidence of the classical Tay experiments to prove the statements up to the hilt as regards the sea life. For the river life we have the very much easier experimental evidence of the scales of fish brought up under conditions of control in a hatchery where, owing to the plentiful supplies of artificial food, the effects produced in nature will certainly not be intensified and if feeding is more copious and longer prolonged into the winter months, as may well be the case, some of the usual reactions on the scale growth and formation might even be masked.

That even the artificial conditions of hatchery life do not by any means invalidate the scale as an index of age is shown in plate 84, which is the scale taken from a smolt reared throughout its life of two years and the portion of a third under control from the egg onwards. The first year and the second year are both shown quite clearly and are marked in the photograph. The growth is perhaps greater in amount and more even in its progress than is normally the case in northern waters when the little fish have to fend for themselves but, even if one did not know the history with exactitude, there would be no hesitation or difficulty in interpreting the scales. The only departure from the normal is the addition of the beginning of the rapid growth of the third year. This would usually not commence until the fish had reached the sea, and in the case of this specimen was possibly due to the fact that the fish was retained in the ponds beyond the date when it was ready to migrate to salt water.

In the Tay experiments smolts were marked by the attachment of a small piece of silver wire to the forward end of the base of the dorsal fin. In later years certain of the adult fish captured in the nets worked for commercial purposes were found to carry this same wire and their direct connection with the original smolts was by this means established.

In earlier times some writers had considered grilse to be a separate species of fish not connected with either salmon or seatrout. But in the course of years this school of thought had rather died out and in its place had arisen two other groups of disputants. Both of these latter agreed that grilse were the young salmon, but while one alleged that they were the smolts returned in the year of migration to the sea the other held that rather more than a complete year had elapsed between the two events, and that the grilse had been feeding in the ocean for approximately twelve to fourteen months. The Tay marking experiment proved the latter group to be correct, for no marked fish were recovered in the year in which the smolts went down to the sea, but a number of marked grilse were taken in the following season.

If we examine the scales of a grilse, an early grilse for example, as in plate 83, we find that the known history of something over a year in salt-water is confirmed by the index of age as carried on the scale. In the centre is the parr area and then a broad band of widely spaced ridges indicative of the ample feeding and rapid growth of the months succeeding May when the river was left behind. Following this is a much narrower band of less widely spaced ridges denoting the time when feeding fell off and growth declined in rate and amount. Once again rapid feeding is started but is not long continued before the urge to return is felt and the fish leaves the ocean larder and prepares for the fast, but on its way, is captured by the nets and its existence is terminated. Theory and practical proof go hand in hand, and the history of the fish can be demonstrated to entire satisfaction from the scales alone.

During the summer further growth is to be expected and is shown in the much wider band of widely spaced ridges at the outside of the scales of grilse taken later in the season. Plate 85 shows how great the addition may be between the month of April when the fish, whose scales are illustrated in plate 83, was netted and the month of July when the last fish (pl. 85) was caught with rod and line.

And so we can continue with the larger and older fish. Each succeeding summer and winter which are spent in feeding and growth are faithfully recorded and remain indelibly marked so long as the scales exist intact. The Tay experiments incidentally showed that the majority of salmon are maiden fish (as is explained on page 30) which have spent not merely one year but it may be two, three, four or even five years continuously in the sea without returning to fresh-water on any, except the final, occasion. And again even in default of this positive proof we have the evidence of the scales as, for instance, that of plate 86, taken from a small spring fish and showing after the parr growth the two summers and two winters spent in salt-water, or plate 87 (from eastern Canada), which demonstrates the further months in the sea of the small summer salmon. A year later and we have the larger fish in the twenty and thirty pounders and after twelve more months the forty and fifty pounders. Their history is as clearly shown as that of the younger specimens and the full three or four years of the large, and very large, spring fish respectively will be found marked in plates 88 and 89. Even salmon which have spent four and five years in the sea continue to register the fact right to the end of their growth period ; the increase in girth may be greater than the increase in length in later life, and the bands of wide and narrow ridges in consequence may be closer together on the scales but they are formed in just the same manner and are just as reliable as an index of the story.

In addition to the bands of closely spaced ridges formed during the colder months of the year narrower bands of a similar type are often to be seen in the marine growth. These accessory bands, usually known as 'checks,' are evidently the result of some slowing up in the growth and therefore are presumably a reflection of a considerable change in the feeding conditions. No exact explanation of the cause of the change of food supply has ever been attempted for we do not know enough of the sea life of the salmon even to be able to speculate on such matters. In some of the illustrations which appear with this chapter such a check may be seen in the first sea summer: in plate 85 it appears, and is marked, right at the edge of the scale. The fish from which this last scale was taken was caught on July 16th, but, as the commencement of erosion shows, it had evidently been in fresh-water for a short time. By observation of a very large number of scales we have been able to determine that this check is usually formed somewhere about the end of June or in the first week of July, but beyond this it is not possible to say anything.

It is now a well-known and generally accepted fact that salmon do not feed in fresh-water but from the day the sea is left behind gradually fall off in condition and lose in both weight and appearance. If drought or other conditions keep them in the sea after the desire to enter fresh-water has been engendered, loss of condition will start in salt-water and both weight and colour may be affected while the fish are still outside the river-mouth.

The changes which take place have a reaction in the scale material and, instead of the addition of fresh growth, that which has already been made is gradually reabsorbed into the body tissues. The process is not at all well understood nor has the reason for it been adequately explained. At first it was suggested that during and after the time of spawning mechanical action due to the shrinkage of the body was responsible for the wearing and attrition of the scale edge. This, however, obviously is not the sole, or even the major, cause although possibly it might be considered to be a minor contributing factor. The ‘ erosion ’ of the scale edge starts long before spawning has commenced or before any shrinkage of the body has become at all evident. In winter fish it may be present in quite the early months of the year, and at least six or seven months before the spawning period. Grilse may show quite appreciable erosion in the months of July and August although they will not spawn until November or December. In the late summer and early autumn months many fish straight from salt-water already have the beginnings of the process evident on their scales.

It has been suggested more recently that the removal of the scale material was due to absorption rather than to erosion, and that it formed part of the general call on the resources of the body for the development of the genitalia. This explanation may, or may not, be correct but as yet the subject has not been investigated by the only person properly equipped to deal with the problem, a trained physiologist, and in default of a better suggestion it has been rather generally accepted.

For the moment, however, we are perhaps not so much concerned with the cause as with the effect since the latter is of immediate moment and of great importance when determining the history of the fish from the scales.

Absorption of the scale material starts just at the corner of the skin pocket where the so-called exposed and undifferentiated portion of the scale joins with the part, more deeply buried in the skin, which bears the ridges and furrows. From this beginning, which is well shown in plate 85, the process gradually extends round the scale in both directions and on each side until finally it joins up at the extremity of both anterior and posterior portions and affects the whole scale edge. At the same time as it extends round the scale it eats deeper into the material so that by the time it has reached the apex it has at the sides also made considerable inroads towards the centre. The circumference round the exposed portion being shorter than that of the anterior portion is more quickly covered and the attack here naturally proceeds farther inwards.

Once absorption has properly started the scale edge has the appearance of having been 'nibbled' (pl. 90), as by some small rodent. In the scales of male fish it both proceeds more rapidly and to a much greater degree than in those of females. In the former sex it also produces a characteristically pointed apex to the exposed portion, while it very often removes almost the whole of the anterior part. It affects the dentine layer before, or to a greater extent than, the fibrous layer and may even remove patches of dentine without ultimately also taking the underlying fibrous material.

Absorption certainly progresses until the fish has spawned and may even continue thereafter although we have no direct evidence on this latter point. Its final effect, as visible when the kelt is descending to the sea and immediately before it recommences feeding, is very variable. As is natural the extent depends largely on the time which has elapsed since each particular fish ceased feeding and, as I have stated above, also upon the sex. All early spring fish which have been perhaps a year or more in the river show very considerable absorption and, in the very few male kelts of this class which survive, the scale area left is a very small fraction of that which existed when the fish was clean run. In the females the loss is not so great, but, even in their case, the register of an entire winter, or more, may be completely obliterated. Scales showing evidence of absorption are therefore quite unreliable as an index of age if a portion has been lost all round the periphery.

It is rather important for statistical purposes to know, and to record, the degree of absorption which has been reached in the scales of each fish, and I therefore evolved a notation for the purpose. The periphery of the anterior, the ridge bearing, portion of the scale is divided into six equal sections along each side and the section into which the absorption has penetrated is noted. For instance, the numeral 6 indicates that absorption extends all round while 4 (as in pl. 90) indicates that it appears for more than half the distance along each side. While useful the figure arrived at can only be regarded as an approximation since the degree of absorption is not the same on every scale off the same fish nor sometimes on both sides of the same scale ; it may vary within limits but not to such a marked degree as may be the case in the scales of seatrout.

After absorption has occurred the edge of the scale bears quite a different appearance to the edge of a scale taken from a fish which is still, or has only just ceased, feeding. In the case of a feeding fish the ridges flow along and almost parallel to the edge which presents a smooth, rounded, unbroken contour. After absorption the edge has, as I stated above, a nibbled appearance and its even continuity is lost ; it is jagged, uneven and rough. The ridges no longer follow in parallel with the periphery until they reach the exposed portion but, owing to the loss of a greater amount of material towards the middle of the sides than at the apex, they run out and each in its turn as it reaches the absorbed edge comes to an abrupt stop.

The original scale of the feeding fish grows in an even progress as is well shown in the photographs which have been considered in these pages. When feeding and growth of a kelt recommences the scales have not the smooth edge as a foundation for the new material which is to be added and before the orderly arrangement can again be taken up the irregularities as left by the absorption have to be filled up and the original rounded form regained.

The junction of the new and the old growth has two distinguishing features. Firstly, as the irregularities are smoothed out, a very apparent join or scar is left which when viewed by transmitted light shows up as an irregular white line. Secondly, the new ridges, as they appear, are not in continuity with those which are already on the scale, nor are they even parallel with them, round the part of the scale where absorption occurred. They follow round in conformity with the new growth and run at an angle across the line of direction of the older ridges. When, therefore, these distinguishing features are observed on a scale as in plate 91 (this fish incidentally weighed only two and a half pounds), it is a direct indication of a visit to fresh-water and a spawning period, and is always described as a ‘ spawning mark.’

In some cases if the fish originally entered the river as an autumn fish and the scale absorption in consequence was not great the subsequent spawning mark may not be very clearly shown. In other cases, as of a spring fish or of a male summer fish for instance, it is very clear and obvious. In very few cases indeed is there any doubt as to its presence, for even if the scar be very slight and extend for only a very short distance the new ridges which run at an angle to the others at this part of the scale give more than a clue to the correct interpretation.

As succeeding winters are registered in the case of maiden salmon so are succeeding spawning marks recorded on the scales of mature fish. The scale growth made after the first spawning mark is subject to absorption in the same manner, and with the same result, as the original scale growth and two (pl. 92), three and four (pl. 93) spawning marks may be recorded, should the fish survive sufficiently long, with the same facility and correctness as one. The extreme absorption of male scales might just conceivably remove all traces of a former spawning mark when the fish was on a subsequent journey, but such happenings must be extremely rare and in any doubtful specimens which I have seen it has nearly always been possible to trace the evidence of the former journey on some, if not on all, of the scales.

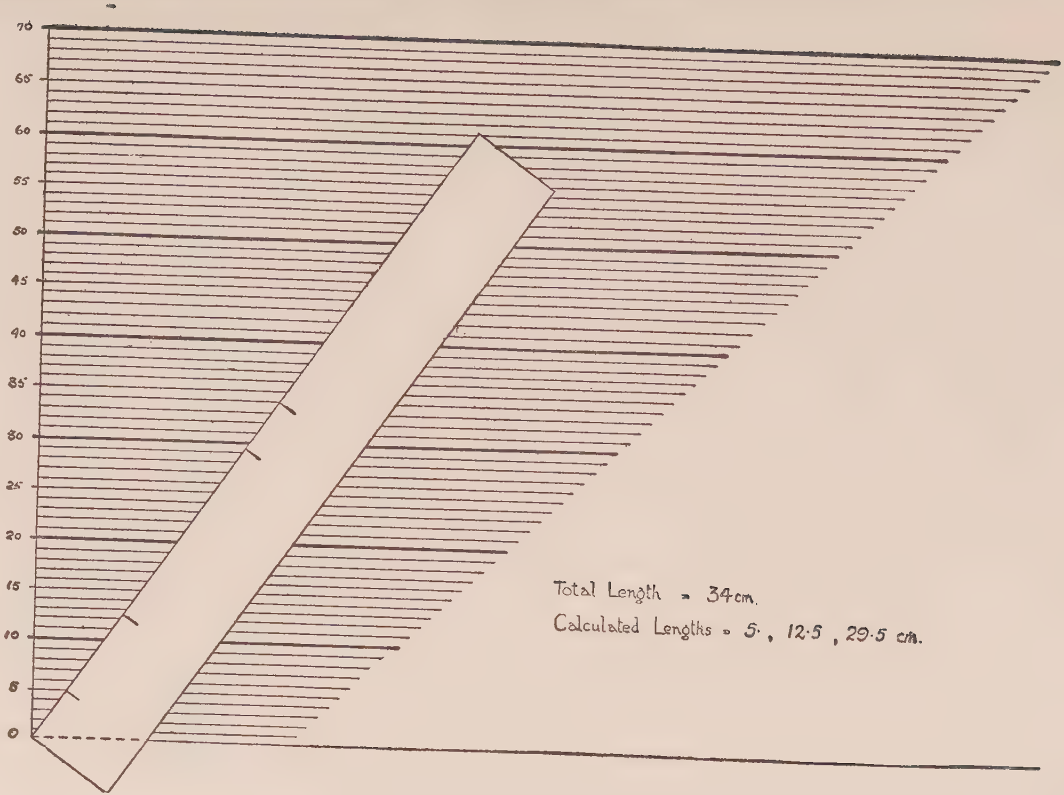
Like the subsequent spawning journey the exact history of the fish when feeding and growing after the kelt stage is faithfully and accurately recorded on the scale. Summers and winters are shown in the normal manner and if the fish be clean run without further scale absorption, it is always possible to determine whether it has been of the ‘ short absence ’ habit, as in plate 94, of the ‘ long absence ’ habit (pl. 92) or whether it belonged to that very limited number which remain in the sea for over a year before returning to the river for the second time (fig. 95). These last incidentally are almost always males.

Fish scales are of use for a second purpose beyond that of age determination. For age assessment no fine gradations may be said to be necessary and the result in general is expressed no closer than in terms of years. With experience one may acquire a somewhat exact knowledge of the approximate time when the fish left the sea, no fine degree of accuracy is demanded or is required. For the second purpose, however, if the results obtained are to be of real use and value, a very considerable degree of accuracy is absolutely essential.

This latter purpose is to estimate the actual length of the fish at the end of each and every year of its life ; this may be achieved with an exactitude which is surprising. The theory on which it is built is that postulated at the beginning of this chapter, viz. that the increasing size of the fish is accompanied not by an increase in the number of the scales but by an enlargement of those which are already present. That this enlargement, and particularly the growth in a fore and aft direction, i.e. along the longest axis of the scale, is approximately proportional to the increase in the length of the fish has been proved. But direct evidence from marked salmon for this purpose is not easily obtained. The growth of adult fish has ceased by the time they reach our coast and the scales of kelts, owing to the effects of absorption and the subsequent hurrying on of growth to replace the lost material, are not suitable for this purpose. If, however, the average length of a considerable number of the older maiden fish be calculated say at the end of their parr life and again at the end of their second sea winter and then these calculated lengths be compared with the actual average length of at least an equal number of smolts and small spring fish from the same river, a very close measurement of the accuracy of the calculated results may be obtained. When this has been done it has been found that the calculated and the actual figures agree to a really remarkable extent.

The *modus operandi* is merely a process which enables the actual scale measurements to be converted into those of fish lengths with the greatest possible ease either by means of micrometer eye-piece or projected image. To measure the length of the scale from the centre to the extreme edge, and then the length from centre to the extremity of each winter band, and by an arithmetical process of proportion to convert these into fish lengths in centimetres or inches would take a great deal of time and be almost too cumbersome for practical use when dealing with a large number of fish. In practice a projector is used, and on the image a rectangular cardboard slip is placed with a corner at the nucleus ; the end of each winter band as well as the extreme apex of the scale is then marked with a sharp-pointed hard pencil, all the measurements being taken in one straight line. This marked card is then applied to a suitable table arranged on squared paper in the form of a proportional divider so that the corner of the card, i.e. the centre of the scale, is placed at the zero point and the card rotated until the apex mark coincides with the known length of the fish. The other lengths at the end of each winter can then be read off at the appropriate marks. The illustration will perhaps explain more clearly the exact form of the card and table than any words can do. (Fig. 203.)

Scale examination will not have proceeded for very long before the beginner will recognize certain abnormalities and departures, slight or


70
65
60
55
50
45
40
35
30
25
20
15
10
5
0

Total Length = 34 cm.

Calculated Lengths = 5, 12·5, 29·5 cm.

considerable, from the usual form. The most common is for the central part to be without ridges. Its appearance is as if the nucleus were very much larger than usual or as if the undifferentiated exposed portion had spread to the whole of the scale up to a certain point when normal growth had at last been started. The explanation is that the original scale was lost but that the abrasion which caused the loss was not sufficient to destroy entirely the skin and the scale pocket. After the original scale had disappeared, a new scale was regenerated, but growth was made as rapidly as possible and no lines indicative of the gradual expansion of the body were laid down until the existing scale pocket was completely filled and growth in the normal manner could be resumed.

Apparently smolts during their descent to the sea loose many of their scales for the majority of atypical areas on adult scales cover the parr-portion of the life (pl. 97). To one who has handled smolts and observed how easily the scales are shed the happening is easily understandable. Such loss, however, is not entirely confined to this period of life but may occur at any time from shortly after the scales are formed until several years have been spent in the sea.

Another malformation due to a similar, but less violent, cause results, not in the entire loss of a scale, but in its misplacement in the skin pocket. After such an injury the growth is not hindered, nor is development other than normal, except that the ridges formed before and after the injury do not register the one with the other and do not follow parallel courses. In some respects the effect produced (pl. 96) simulates at a later stage a spawning mark, but may be distinguished owing to the fact that although the later ridges cross the ends of the earlier ridges at an angle there is no distinct scar at the junction and the line where the ridges at a different angle meet is too smooth to represent the absorption of a kelt scale.

Other somewhat curious abnormalities are occasionally met with. A scale may have what appears to be a bare patch on which are a few ridges in the form of a spiral or there may be an actual hole right through the scale as if it had been made by some boring animal. This last type of round hole, however, must not be confused with the oval and more complicated aperture found in scales taken off the lateral line and which forms the termination of the lateral line canal.

Bizarre malformations of the scale are occasionally met with for which no reasonable explanation is evident. One of the most curious that I have ever seen is shown in plate 97.

CHAPTER THIRTY-EIGHT

THE RIVER SHANNON

By John Rennie

IN describing the Shannon it would be as well, first, to take its course and, secondly, to try and give some idea of the fishing and the altered conditions of the river since the great power scheme was completed in 1929.

The Shannon runs approximately from North to South of Ireland, and commences its southern journey through Carrick on Shannon and then through Lough Boderg into Lough Ree. At the southern end of Lough Ree, the river starts again and flows by Athlone into Lough Derg at Portumna.

At the south end of Lough Derg we find Killaloe. Before 1930, the river commenced again and had an uninterrupted journey to the sea. Now, owing to the Shannon power scheme, Lough Derg has been extended for some four miles until you come to the great Dam and head works at Porteen Villa, which is about a mile above O'Brien's bridge. Six miles below this is Castleconnell.

If you take the total length of the river and the lakes through which it flows, you will find that it is about 250 miles. It has an enormous drainage area of about 4500 square miles as compared with the drainage area of the River Tay in Scotland, which is 2500 square miles.

As a salmon river, it is now limited to a few miles below Castleconnell. The great Dam at Porteen Villa controls the amount of water which is allowed to go down the river and the canal which leads to the power-house.

Here we have the salmon pass, most carefully and well designed with all the latest ideas.

There are two bailiffs, watching night and day and, as far as possible, counting the salmon ascending.

It was noted that some of the fish took only fifteen minutes to ascend the thirty-five feet.

I spent two Sundays one year at the fish pass, and it was most amusing to watch the fish going up the spiral staircase. I think about 140 went on one of the days. The pass has been made so easy for them, that it requires no exertion on their part. I saw great fellows up to thirty pounds and they took very little notice, although we were only a few feet away. I also saw large trout up to five and six pounds ascending ; but not nearly so quickly as the salmon.

From the Dam to Castleconnell, the river flows in a deep and sluggish course, so that it is from Castleconnell down that the interest begins from the salmon-fisher's point of view.

The River Shannon has been and still is most dreadfully over-netted, otherwise there would be no river to compare with it. There are weirs, stake nets, seine nets, drift nets, laxweir cribs, snap nets. No wonder so few fish ever get up the Shannon.

Looking up old records I find that away back in 1865, the beat known as Doonas at Castleconnell killed 425 salmon. In the year 1866 671 salmon and grilse.

After that year the records begin to drop away and from 1889 to 1892 the average catch on Doonas is about 35 salmon up to the end of May and in 1899 only 19 fish were caught.

In the 'seventies, 150 to 200 grilse would be caught on this beat in the season. Now there are practically no grilse. Likewise, we find the same thing on other well-known beats. The 'Hermitage' and 'Prospect' were rented by Mr Cripps, for which he paid £500 per annum. In 1899, we find him writing to the commissioners to say that the fishing had fallen off so much, owing to excessive netting, that he would not pay 500 shillings for the renewal of his lease. It is interesting to look back on these records and to find that the fishing has improved during the past ten years.

One hears a great deal about the 'glorious past' from the boatmen; but you have to go back a very long way to find these wonderful catches.

1928 was a very good year and there were plenty of fish in the water. There is a report that in 1930, a large number of grilse came up in July.

Having now got down to Castleconnell, you must picture to yourself a great, broad, rugged river, tumbling through locks and opening out into great pools.

There may be larger rivers; but the Shannon at Castleconnell is the most sporting bit of river I know.

I remember, after I had been broken or cut by two or three fish, my boatman said, 'But you see, your honour, they are built for speed and power,' and so they are.

Not long ago, I was fishing with a man from New Zealand, at Castleconnell, and he told me many stories of the wonderful fishing in that country and what the fish could do.

I said to him, 'Wait until you get hold of a big Shannon fish.' A day or so afterwards he hooked a big one and it broke him to pieces! That is what the Shannon fish do to you, and there are no fish like them. I have purposely omitted any account of the fishing that used to be at Killaloe. Those days are past, although if you want trout-fishing you will get some first-class sport, and you will have a great welcome from Miss Grace, who will make you very much at home in her small hotel.

From the latest information obtained, it would appear that there are as many fish in the water, as in other years. In January, 1930, before the fishing opened, there was a large run of big fish.

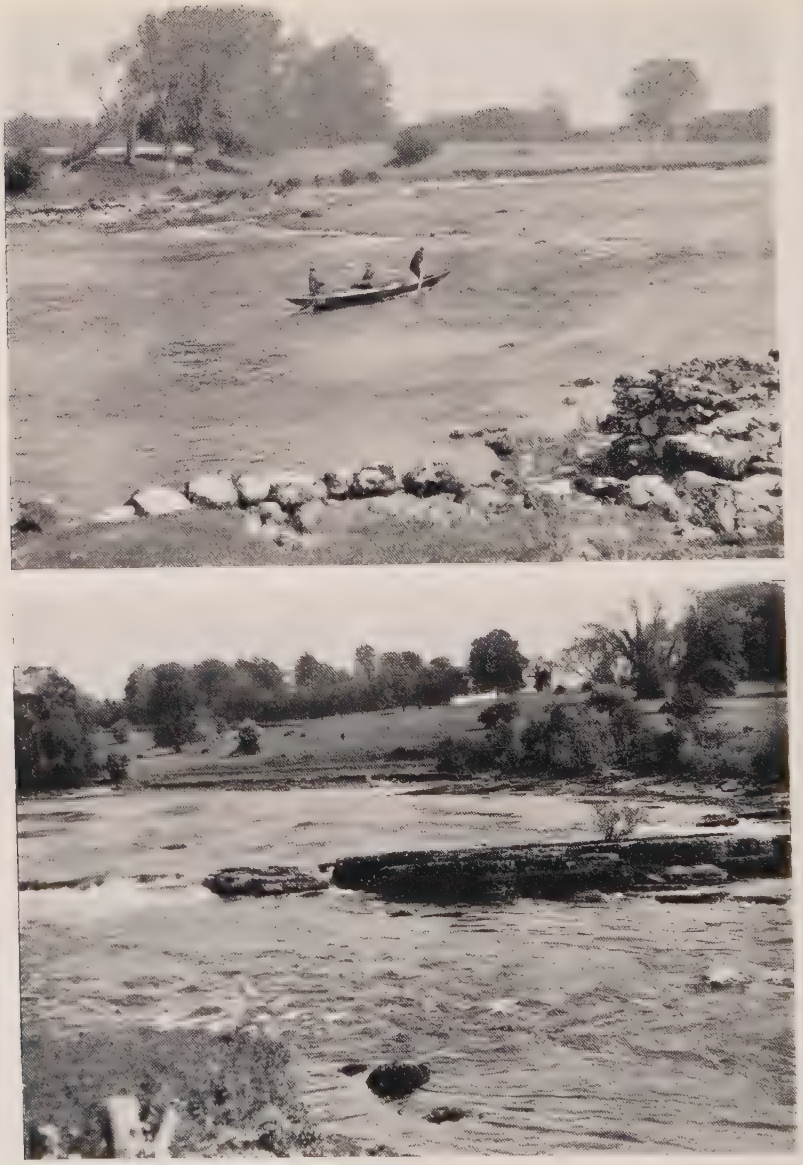
'But what happened to them all?' you will say.

The answer is, 'They all ran straight through.'

'But why did they do this?'

Answer: 'Because the conditions were altered, owing to the constant change in the height of the water.'

The explanation for this was, that the 'Scheme' had not settled down this year (1930), and much had to be done in experimenting with the raising and lowering of the sluice gates, so that the water never had a



Plates 98 & 99

SHANNON

TOP : 'COOLEEN' DOONAS BEAT. BOTTOM : 'HERMITAGE.'

THE UPPER PHOTO SHOWS THE 'COT' BEING USED. AS THE FALLS ARE JUST BELOW IT IS EXCITING WORK.

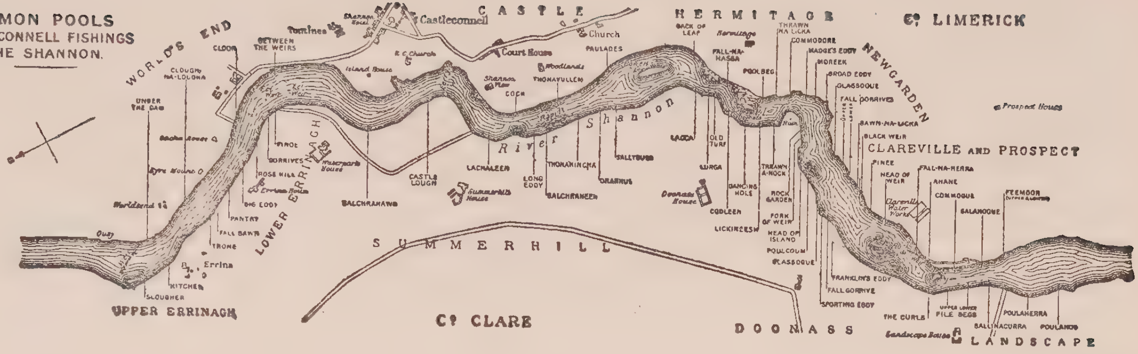

SALMON POOLS
CASTLECONNELL FISHINGS
THE SHANNON.
WORLD'S END
UNDER THE DAM
CLOUGH-NA-LOLONA
CLOON
BETWEEN THE WEIRS
Tomlnes
Shannon Hotel
Castleconnell
CASTLE
Church
R C Church
Island House
Court House
Woodlands
Shannon View
PAULADES
THONAVULLEN
COCH
HERMITAGE
BACK OF LEAP
Hermitage
FALL-NA-HASSA
POOLBEG
THRAWN NA LICKA
COMMODORE
MADGE'S EDDY
MOREEK
BROAD EDDY
GLASSOGUE
FALL DORRIVES
NEWGARDEN
BAWN-NA-LACKA
BLACK WEIR
CLAREVILLE AND PROSPECT
C° LIMERICK
Prospect House
PINEE
HEAD OF WEIR
Clareville Water Works
FALL-NA-HERRA
AHANE
COMMOGUE
SALANOOUE
FEEMOOR
Quay
Worldsend
Eyre House
Blackwater House
PINOE
DORRIVES
ROSE HILL
Errina House
BIG EDDY
PANTRY
FALL BAWN
TRONE
Errina
KITCHEN
SLOUGHER
UPPER ERRINAGH
LOWER ERRINAGH
Waterpark House
BALCHRAHAWO
CASTLE LOUGH
LACHALEEN
Summerhill House
River Shannon
Rapids
LONG EDDY
THONAHINCHA
BALCHRANEEN
DRARNUS
SALLYTOUGH
LACCA
OLD TURF
SURGA
Doonass House
DANCING HOLE
CODLEEN
LICKINCESH
THRAWN A-NOCK
ROCK GARDEN
FORK OF WEIR
HEAD OF ISLAND
POULCOUM
GLASSOGUE
Ruin
FRANKLIN'S EDDY
FALL GORRIVE
SPORTING EDDY
THE CURLS
UPPER LOWER FILE BEGS
BALLINACURRA
POULAHERRA
POULANOS
Landscape House
LANDSCAPE
SUMMERHILL
C° CLARE
DOONASS

Fig. 204.

chance. However, I am assured on good authority that things will be different and the water, in the early spring, will remain at a more constant level.

What is left of the Shannon?

Not much it is true; but we must make the best of what there is left. While we are thinking about this run of fish through Castleconnell, the following observation might be made. In the old days it was said, and I think rightly, that the large fish did not appear to go above the sluices at Killaloe, and the old fishermen would tell you that they slacked back to the spawning beds below Castleconnell. This opinion appears to be well founded as hardly any large fish were seen or caught above Killaloe, there may have been a few; but I am speaking generally.

Now let us see what is happening. Since the salmon pass has been made at Porteen Villa, the fish have been romping up, big and small in great numbers. What they will do when they find themselves in a big strange lake, remains to be seen. I doubt if they will return and go down the river again to spawn, and if not, they will have to find other spawning grounds higher up the lakes.

The fishing now begins at 'World's End,' just above Castleconnell, and from there down to the ferry, just below Castleconnell, there is magnificent fishing, more especially round about the eel weir.

Above the ferry there is a long smooth piece of water, known as the 'Castle Lough.' On a fine evening I have seen salmon in large numbers, rising like trout. At the ferry there is a hold for big fish.

Taking the left-hand bank we come to 'Woodlands.' There is a small pool at the head of this beat, just above the rapids. I confess to a feeling of nervousness whenever I fish this pool.

Imagine yourself in the middle of a long 'cot,' which is the type of boat used on the Shannon and which is like a Thames punt only narrower. Your two boatmen, one in the bow and the other in the stern, pole you out to the head of the rapids. There the 'cot' is held and if you are pretty good on your feet, you stand up.

The river is boiling over the rocks all round you.

You are told to cast into this bit of wild water and if you hook a fish, 'Hold on like the devil!'

Well, the first time I fished this, I had not taken half a dozen casts, before I was into a fish. Away he went, up and down, then across, round a rock and smash bang! It was over quicker than I can write. That fish was between 30 and 40 lbs., and they asked me to hold him!

The next time, more or less, the same thing happened, so you can see why one is inclined to a feeling of nervousness.

However, with stronger tackle and a stronger hand, I managed to hold the next fish and eventually killed five of the prettiest up to 25 lbs. I have ever caught. The great thing is to keep the rod high and to have a fairly long one, not less than 11 ft. 6 ins. and a large diameter reel, so that you can put on a heavy brake with the fingers.

Below the rapids, we come to a long fine sweeping pool, which is always a great hold for fish, when the water is at medium height.

This pool will take you two hours to fish properly. Below this we come to more rapid water, and it was here, in 1929, that Major Macdonnell caught his great fish of 51 lbs. The story of the capture of this fish would take too long to tell ; but to have caught a fish of this size in that water, was a great achievement.

'Woodlands' fishes down to Powall's Island, and I always look back to this beat with great pleasure. Now let us cross over to the right hand to the beat known as 'Doonas.'

'Doonas' starts at 'Sally bush,' and goes right away down to the Rock Islands.

It is divided into two beats, and is probably the best water on the Shannon, although for the past two years it has not fished well. 'Old Turf' is a grand pool, and just below this is 'Cooleen.' Both these pools hold big fish and many a fisherman has been broken here. Below 'Cooleen' is a nice little pool, one of the few that can be fished from the bank, and there is generally a fish or two there. This pool is known as the 'Dancing Hole.' A pretty name and well chosen. If you get a fish here, he will lead you a 'pretty dance' and you must be active on your feet, or, he will be away and lost in no time. There is another cast from the bank a little below this ; but personally I have never moved a fish there.

Now we come to a bend in the river and some high rocks and an old ruin, marked on the map.

At one time, I am told, this was the headquarters of the 'Hell Fire Club.' I have never heard the correct history of this club ; but I understand, the less said about it the better !

There is a kind of gallery cut round this rock, and this is the end of the top beat. It is a delightful place to sit down in the shelter of the rocks and watch the fish in 'Moreek.'

I remember once in 1929, I was sitting down having my lunch after one of those blank mornings with not a fish showing, when suddenly—owing, I suppose, to some atmospheric condition—five big fish started coming up. Not one of those fish was under 40 lbs., and the largest was near 60 lbs. ! What a fish.

Other people saw this fish afterwards and they confirmed my opinion of his weight.

The lunch was put on one side and away we went in the boat. One big fish came right across at my fly and missed. Then I put on a gold Devon and was very soon into one of the big ones. I had him on for about ten minutes, then he stopped, and I felt a grating feeling up the line and I guessed he was up against one of the sharp rocks. I shouted to the boatman to go over to him, and if I had only had the presence of mind to slack the line, all might have been well ; but we were too late, the line was cut. He was a grand fish, we had seen him twice.

It was in this pool in 1928 fishing from the other side, that Col Maunsell got eight fish in the day. Four of these fish were 30 lbs. and over, and the best 37 lbs.

A number of fish had come into the pool the night before and he had the day of his life.

Below the ruins there is a pool known as 'Poulcoum.' It is a fine deep pool, and runs between the right bank and two small islands. It has a great reputation for holding heavy fish ; but I have always found it disappointing. I have seen it crammed full of fish and have spent a great deal of time there, but I have only caught small ones.

In 1920 the Earl of Kingston was fishing this pool and lost a very big fish after having played him out. I could never get him to say how large the fish was ; but he did say that the 45-pounder he had caught the day before, was a ‘ baby ’ compared with the one he had lost. The river was full of big fish in 1928.

There are a few good catches below this, when the water is high; then you come down to the ‘ Rock Islands ’ and here ‘ Doonas ’ ends.

‘ Landscape ’ is the next beat below ‘ Doonas ’ on the right bank. I have never fished this water from the right bank ; but I know it from the opposite side.

There are many good catches and casting places ; but I do not think the right bank fished as well as the left.

Below ‘ Landscape ’ there is no fishing worth speaking about. I remember once fishing from the opposite side and whereas I was getting into fish every quarter of an hour, the right-hand bank was doing nothing. Poor people, they looked awfully upset, and no wonder.

Now, let us go up the river again and have a run down the left bank. I have already said a few words about ‘ Woodlands,’ so we will start at the beat below called ‘ Hermitage.’ Formerly the property of Lord Massey, the house is now a ruin, having been burnt out in the bad times. It stands in a wonderful position overlooking the river and from it you can see from ‘ Prospect ’ to ‘ Woodlands.’ I know no more beautiful site for a house anywhere.

Mr Whipp owned the Fort Henry water at Killaloe before the ‘ Flood ’ and afterwards ‘ Hermitage ’ water. I believe he did quite well, even in the bad year 1930 ; but he is a hard worker and a first-class spinner.

‘ Hermitage ’ is a rough and rugged beat, and anything but easy for a new-comer. I have a friend a member of the Fly Fishers’ Club, who got his ‘ cot ’ overturned here and lost everything.

The ‘ Hermitage ’ water fished down to the head of the large pool ‘ Moreek.’ ‘ Newgarden ’ in high water takes a lot of beating.

I have caught a number of fish in this water and lost quite a number. On the edge of ‘ Moreek ’ where the water curls over, there is a small catch ; but it always holds a fish and a large one. The boat is held at the edge of the rapid water, and there are only about a dozen casts. The first time I fished this, one of the big ones threw himself at my prawn. Nothing could stop him, he cut me and gave me a very sore knuckle. The next time I tried, more or less the same thing happened. I asked my boatman if anyone ever caught a fish in that place, and he said he could not remember anyone ! When I heard that I did not mind so much.

‘ Newgarden ’ has some fine catches in wild water. The ‘ Broad Eddy,’ ‘ Glassogue ’ and a few others, until you come to the head of ‘ Pinee.’ I have had some grand fish here.

Now we come to ‘ Clareville ’ and ‘ Prospect.’ This beat starts at ‘ Pinee,’ about half-way down. There is a weir at this pool and here the salmon after ascending, remain in the still water just above. In fairly high water, it fishes extremely well and salmon will rise all round you. It is a nice place to get a fish, unless he takes it into his head to go over the weir and then the chances are on the fish.

You can walk out on the weir and get some pretty casting down to Major Foster’s bungalow.

Below the bungalow there are several good pools, especially opposite the old mill, then, there is a long stretch of fine water, which will take the best part of a morning to fish properly. Below this, there are a few small catches in rough weather, and this is practically the end of fishing.

A few reminiscences and a word about tackle, before this article finishes. To fish the Shannon successfully, you must have the best and strongest tackle, much stronger than any other river I know. Your spinning rod should not be less than 11 ft. 6 ins., and your line a heavy one. Many fishermen prefer to 'pitch,' instead of casting from the reel. This is a local term and means that your line is coiled in the bottom of the boat, which enables you to cast with a heavy dressed line. This thickness of line cannot be cast direct from the reel. Personally, I use a very strong undressed line on a 4½-inch reel.

The rocks at Castleconnell are notorious and any light line, however strong, is soon cut on the sharp edges.

As to baits, in the early part of the year, the gold and silver Devon is as good as anything. In April and May, the majority of fish are caught on the prawn. In May your prawns must be smaller. Fresh prawns you must have, the fish knows the difference between these and bottled prawns very quickly. If you fish with bottled prawns, your boatman will take no interest in you.

We found that the best tackle was a single triangle mounted on wire, with very strong hooks. A wire trace about a yard long, with a celluloid spinner at the top, so as to spin the prawn.

About the Fly? I remember making a little calculation about fly-fishing, and having counted the approximate hours I had fished with a fly each day and the number of casts, I arrived at the approximate number of casts in three seasons fishing. I then counted the number of fish I had caught on the fly and the number risen. The results were so ludicrous that it is best to leave it at that, and say that it is a fine exercise and requires a great deal of skill!

The fact is, fish do not take the fly well at Castleconnell, and as far as I can hear, they never did!

At Killaloe, it was different, quite fifty per cent of the fish I caught there were on a fly. The reason for this I cannot account for. I remember the first time I went to Castleconnell I thought my tackle was strong enough for anything. Never shall I forget the day, when I was completely broken in four large fish and lost two others from weak hooks.

I told my boatman to row back and we would go home. Before we got to the bank I said, 'Let's have another go.' So we did have another 'go,' and I got three fish, 20, 24 and 28 lbs.; but these were only the small ones! On another occasion, Pat Myers and I saw a huge fish below the weir at Pinee. I put a prawn over him and got in touch immediately. Away he went, down and across to the small island shown on the map. Something had to be done, so I put on all the power I could and yard by yard, got him back to the pool, and I said to Pat, 'I think that has broken his spirit.' Not a bit of it, off he started again on the same journey; but this time the triangle straightened and he was gone. I remember seeing a curious incident on 'Hermitage.' I was fishing on the 'Doonas' side opposite. The man on 'Hermitage' got into a big fish. His rod and tackle appeared to be on the light side and the fish gradually took him down and finally broke him.

This is not an unusual occurrence on ‘ Hermitage,’ but the point of the story is, that, not long after, he went back to the same place and hooked another large fish. The same fight began again. The fish took him down and again there was a slack line. This time when he reeled up, there was the tackle attached to his minnow, which he had lost half an hour before. Poor man, he had no luck that day ! All these accounts will perhaps frighten the intending visitor ; but don’t dwell too much on these disasters. I had my good days when I had adjusted my tackle to suit the fish and the river. I remember telling my friends on the Wye, that their fish were like ‘ goldfish ’ compared with these wild devils.

The beauties of Castleconnell cannot be surpassed anywhere, in my opinion. Wonderful park-like lands and beautiful trees run down to the river. Your greeting when you return to Castleconnell each year cannot be more delightful, and one cannot wish for more kindly hospitality than what one finds at the Shannon Hotel. I hope I may return there often.

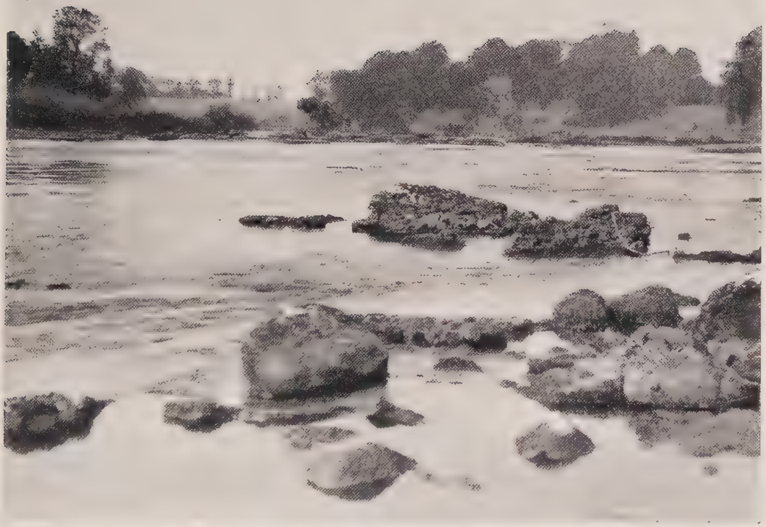
Just one word more and my article is completed. The great Shannon Power Scheme, which has cost many millions, and which has harnessed nature, must be admired for its great engineering achievement and the enterprise of its Government.

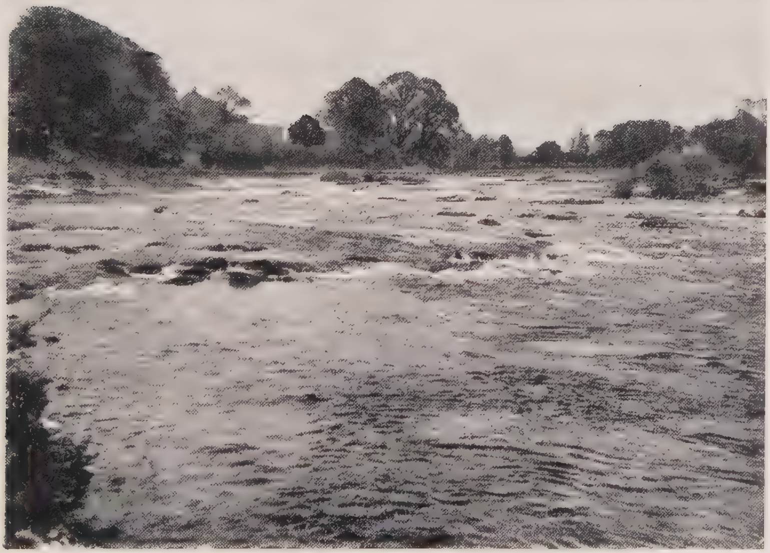
Ireland has always lacked the power, which other countries have enjoyed, either through their coalfields or through water power. Where, one might ask, would England have been, if she had not had her coal ?

Ireland has lacked coal and therefore has few industries. Now that she has the power, through the great Shannon scheme, let us hope that it will bring her prosperity in the near future.

Let us also hope, that the Government will do their utmost to protect the salmon industry and allow sufficient water to flow down the river at Castleconnell. Something more than this is needed. They must buy up the Laxweir at Limerock and curtail the netting in the river and the sea.

Having done so much to assist and safeguard the fish, let us hope they will do their best to allow more fish to ascend the river.





Plates 100 & 101

SHANNON

TOP : 'COOLEEN' LOOKING DOWNSTREAM BOTTOM : 'THE DANCING-HOLE,' DOONAS.

CHAPTER THIRTY-NINE

SOME NAMES OF SALMON POOLS

By Eric Parker

A MAN in his life may fish few salmon pools, for if he is wise or fortunate he returns to those which he has known and fished before. But he remembers them all, since there is no way of coming closer to a river than by wading deep in it, and he remembers always their names. How many and how different the things each name brings back !—sounds of water and birds singing, a ghillie's voice, primroses along the bank, yellow leaves floating. And how surely each name has its own meaning, sometimes quick and welcoming, sometimes dark and wilful, sometimes almost ominous, much more often full of the suns and winds of February, April, October. The name of a pool before you come to it is a word, a sound, mere syllables on paper ; when you have fished the pool once then it is a living thing. 'Baith in Faldonside Burn fut '—I suppose that is the first salmon pool of which I ever read, for it was early in my acquaintance with books on angling that from Scrope's *Days and Nights of Salmon Fishing* I learnt, with Harry Otter, what was meant by a fish. And when many years afterwards I came to Faldonside myself, and saw where Sandy had taken his two fish of twelve and fifteen pounds, 'ane wi' Nancy, and the ither wi' a Toppy,' I was already under the spell of the Tweed.

But more than Scrope, and even more than Scott, Andrew Lang brings the sight and the sound of the Tweed to me, and at Melrose, from which I first fished the river, I was within range of Eildon's 'three crests against the saffron sky.' I could hear the water as the writer of *Grass of Parnassus* heard it—

'Old songs that sung themselves to me,
Sweet through a boy's day-dream,
While trout below the blossom'd tree
Plashed in the golden stream.'

And so from the Cauld pool and Cowie's Hole at Melrose, and Glen Mein and The Wheel on the Boldside water, there blows the same air of the Border. I caught my first salmon in the Tweed as the October evening darkened, and I never find myself on its banks without hearing the voices I heard then—

'Like a loved ghost thy fabled flood,
Fleets through the dusky land ;
Where Scott, come home to die, has stood,
My feet returning stand.
A mist of memory broods and floats,
The Border waters flow,
The air is full of ballad notes
Borne out of long ago.'

Tweed has always been for me an autumn river, and the Aberdeenshire Dee a river of spring. And just as the names of Tweed pools set themselves in a haze of autumn leaves and mellow sunlight fading to grey, so the names of Dee belong to blue shadows on snow and the songs of chaffinches ; and for whatever reasons too they are wilder and stranger than those of the Border. The genius of the river is of the North, of oral tradition and solitary places ; there were wolves in these forests not so long ago, and monsters in these waters. So the names of the pools belong to lonely glens, and though here and there you find what is perhaps a farmer's or forester's, when the pool has been called after its neighbours, most of the pools somehow name themselves and some of them with a riddle. I should guess that there were more names and stranger, for pools on the Dee, than any other river of the North.

The first pool I ever fished on the Dee lies a little way below Potarch Bridge, and is called 'Burn of Angels.' There are two names for you within perhaps two hundred yards, and each of them asking a question. What is the derivation of Potarch ? That is perhaps simple, for the pool just above the bridge is known as the Pot, and there is the triple span of the bridge an arch above it. But then, the pronunciation ? It is always Potarc. If there was ever the soft-sounding 'arch' in that name, how did it get hardened to 'arc' ? As for Burn of Angels, must we try to explain it ? Was Angel, possibly, or Angell, a crofter who lived by a burn dropping into the Dee just there ? But if so, would not the pool be called Angel's burn ? I like to guess—as I chose to think that morning when I fished it and first felt the tug of a Dee salmon—that once some wondering fisherman blessed supernal presences above that pool for guiding fish to rest in its bright waters.

And those other pools of the Dee by Potarch, and on the Dinnet water, and the Commonty water, and further downstream at Inchmarlo, how many riddles they set you ! Red Brae on Dinnet—that is easy, with the colour of that long scarp above the stream, and the contrast of the sun on it above and the dark, difficult wading among rocks below. But Red Brae is not such a test of a fisherman as is The Logie near Dinnet Bridge. Does Logie mean dull and slow and heavy ? I was told so by a ghillie there, and I almost dreaded The Logie at certain heights of the water, so deep and uneven is the wading, and so strong the press of the stream among the slippery stones.

There are always pools like that on any long beat of a river, pools in which fishing is a duty, pools from which you are grateful to be compelled to come out on the bank as I well remember I was one stormy hour in Logie, when a salmon took my fly high up in the pool and ran the length of it down to the tail. There is a particular cast in the Ballogie water, lower down the river, which I set side by side with that Dinnet pool (Ballogie and Carlogie beats lie next each other—is there the same meaning somewhere in the name ?). That is the Mid Hole. When a pool is a Hole beware. It has won its name. Before the War the Mid Hole was even a dourer place than it is to-day, for the southern bank of the river was a sharp slope planted with spruce, so that the sun could not reach the pool, and you waded uncertainly in a high dark current among large boulders. Below each boulder, as every salmon-fisher knows, the current scoops out a hollow deeper than the bed of the river just above it, so that wading in the Mid Hole in those days became a succession of blind plunges forward into unknown hollows. The river bed is easier to see to-day, but those hollows still make a Hole

The Gannets, the Fence Pool, the Flats, the Pot, the Bridge Pool, Inchbear, Priest's Hole, the Kelpie—some of these names of pools on the Dee are common to many rivers, some are easy to understand, some have no obvious derivation. The Minister's Pool, on the Dinnet Water, is a modern name, but I should guess that Priest's Hole, on Ballogie, has been fished for many years. There is no house of any kind, much less an Abbey, or even a Manse near it. As for The Kelpie, from which I have never taken a fish, though I have put many flies over it, I can easily understand any kind of bad luck in that deep fast-running water. Everyone knows that ever since anyone can remember, and long before that, too, sounds have come at times from the pool which can be nothing but the neighing of the water-horse known to inhabit it, and I for one have little doubt as to the power of the spell cast over me and my rod by The Kelpie. Lower down the stream I find myself under a different spell—perhaps I should call it charm. There is a pool named The Blue Chair, and though I have never fished it at the right height of water to see the reason for the name, I am ready to be convinced that some other fisherman luckier than I has done so, and has seen the naiad of the pool with her blue hair wavy in the water sitting on the rocky ledge that gives the pool its name.

Further down the river still Inchmarlo sets a puzzle. Other rivers have a Deer Leap or a Hart Leap, and there is The Loup on the North Esk not twenty miles from Dee, all of which are names that need no explaining. But Inchmarlo has a pool which no one knows for certain how to spell. It is pronounced Roe's Pot, but is that the right spelling? Or should it be Roe's Spot, or Roe Spot, or Rose Pot, or Rose Spot? Is it so called because roe can cross the river there, or because roe come down to drink at that spot, or because salmon spawn there, or was there once a wonderful rose tree there, as you may see briar and other Scots roses by the banks of other pools? The natives know, but they differ.

Floating Banks is another name which belongs to more than one river. And when I first met the name I thought, because of the height at which I fished the pool, with the stream running evenly over a grassy rim, that it was the banks themselves that floated in this way and gave me fishing so much easier than when I must wade deep and dark among stones. But that was not the reason, I learnt later. It was from Floating Banks in the old days, that timber was sent down the river on rafts, and you must have smooth banks and smooth water to be able to manage your rafts and felled trees.

In Ireland I have not found the same kind of problems that Scottish rivers offer, but that may be because I have fished in Ireland less often. I only know one river well, and that is the lovely stream that rises in the Kerry mountains and flows through primrose-lighted meadows by the tall rhododendrons of Carrigadrohid to the city of Cork; the river that was always in the heart of Francis Mahony, writing 'With deep affection and recollection' of

'the bells of Shandon
That sound so grand on
The pleasant waters
Of the River Lee.'

Many of the pools are named after tenants or neighbours—Driscoll's Reach, Galgey's Reach, George's Rock, Beamish's Stream. Here and there we might be in Scotland, with Green Banks and Half Hole, or with the prefix Pol, which is pool in South Ireland just as it is in Aberdeenshire. Now and then we come to pools named after their shape or for some other plain reasons, such as the Key Pool, which runs round a double bend, or the Ladies' Pool, which I have also heard called Polim Ladies and Powl o' Ladies, the meaning being in any case that a lady could fish it. Angley, the first pool I fished on the Nettleville beat, has always been a puzzle to me ; the derivation that offers itself is too obvious. Two other pools, Pol Imod or Pol Nimod—the local names vary—and Pol Dan'l I take to be territorial, and possibly corrupt. Pol Dan'l was my favourite, and I suppose I shall never see its easy, musical waters again ; I used to know every yard of it, and could go with you to-morrow to show you the ' taking spot ' that I fished down to, cast after cast so confidently in Dan'l.

But the Lep was the pool of pools of the Lee, not perhaps for the fish that came from it, for you could only fish fly in the tail of it, and most of the salmon caught in it were hooked by ' pacing down ' a prawn. But the beauty of the pool was its shape and depth, for the whole of the Lee poured through it in a narrow chasm, as deep as should hold the water that lay stretched out wide above it. Each side was solid rock, in the crevices of which London Pride blossomed and grey wagtails nested ; and to understand the name, you had but to glance at the distance between ledge and ledge on each side of the river. It would be difficult to get a running jump, and it would be a fearless man who should miss risking his footing on the far side with ridges of rock jutting up in the water below him. Has the Lep ever been jumped ? Tradition is strong, of course, that it has. But on the only occasion on which I know that it was crossed it was not jumped. Dan Riordan, one of the best ghillies I have ever had with me, told me how he crossed it. A woodcock had been shot and fell on the other side. He retrieved it, on a frosty winter day, by swimming the Lep naked.

How many pools there are which I have never fished, but of which I know or have read the names, and have guessed, as others have guessed and will still guess, at the meanings. Boghead, Bogbraes, Wood of Shaws, Scatterby, Thieves Pot—how pleasant a succession on the Deveron ! Simmons, Lady Grace, The Lorren—what a varied trio on the Upper Dee ! Otters Hole, Back o' the Broom, The Collies, Boat o' Brig—you could hardly beat those four from the Spey. I have seen none of them, but the printed names on the page draw me across the room. I take up Grimble's *Salmon Rivers of Scotland*, and turn over its happy leaves ; here in the names alone are half the meaning of salmon-fishing.

CHAPTER FORTY

THE LEGAL ASPECT OF FISHING

By A. F. L. Bacon

Barrister-at-law

1. *Preliminary and Historical.*

BEFORE overwhelming the reader of this book with a steady flow of legal matter it is necessary to explain that a good deal of the law in relation to fishing is very ancient and has, in its passage through History, rolled up a mass of technicalities, many of which the layman could not or would not wish to understand. An endeavour has therefore been made to substitute plain English wherever possible for the appropriate legal phrases.

It should be added that authority for practically all the statements in the first eight paragraphs of this chapter can be found either in the textbooks,[1] or in actual decided cases, but for the sake of clarity no references have here been made. Paragraph 9 relates to the statutory law which supplements and extends the common law on our subject. For the sake of convenience some provisions of the Larceny Act have been referred to in Paragraph 7.

Before proceeding further it is also necessary to say something, which cannot ever be said too often, namely, that it is one thing to know a little law, or even the whole law, with considerable accuracy, and quite another to be able to apply it to the facts of a given case. While, therefore, it is always desirable to know something on the subject, action should never be taken without first calling in the advice of an expert, who has been accustomed to the fitting of facts to principles ; money will be saved in the end. Almost more important still is the advice not to litigate, but to agree with your adversary should it be in any way possible, and at almost any cost to your personal dignity, and leave the arena of the courts for the knaves and the fools. Apart from the question of vexation, fishing cases show an unpleasant tendency to go right up to the House of Lords for decision, and they are by their nature, owing to the difficulty of procuring evidence, immensely long-winded and expensive.

It is not proposed to deal with public fishing in tidal waters, seeing that, for practical purposes, the public have no right when fishing to go on the land above high-water mark, and therefore the fisherman with rod and line is hardly concerned with the subject. Moreover, the general public ' have not of common right ' the right to fish in non-tidal waters, even though they happen to be navigable. ' Persons using a navigable highway no more acquire a right to fish than persons passing along a public highway on land acquire a right to shoot.' The public cannot acquire a right of fishing over another man's property by exercising such supposed right for any length of time, nor can the owner abandon his right by non-use.

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[1] See particularly Halsbury's *Laws of England ;* Stuart Moore's *History and Law of Fisheries*, 1903 ; Oke's *Fishing Laws*, 4th ed., 1924.

Our judges have always laid stress upon the great misfortune which would be caused by any such public right, inasmuch as it would check the benevolence of landed proprietors in permitting people to fish, lest advantage should be taken of their good nature. 'Nothing worse can happen in a free country (said a distinguished judge) than to force people to be churlish about their rights for fear that their indulgence may be abused.'

We can therefore direct our attention to that portion of the law which relates to Private Fisheries.

A private right of fishing can be either 'several' or 'common,' or to give it its old-fashioned name 'common of piscary.' 'Several' means that no one has a coextensive right with the owner; 'common' means a right in common with the owner, and perhaps also with others who have the same right.

Private or several fisheries in tidal waters originated in some grant from the Crown, before Magna Charta, but cannot now be created except by Act of Parliament. The right to fish in non-tidal waters was originally vested in the Crown, as owner of the soil, who granted it out separately, or as part of the adjoining manor. The right then remained with the manor, or was conveyed by the 'Lord' either together with the riparian land (i.e. the land on the banks of the stream), or separately, and thus came into various hands. It is important to notice that the right can either exist as one of the incidents or ingredients of ownership of the soil, or as a mere right separated from the soil.

2. *The Title to a Fishery.*

A man can show title by producing his grant *and* showing acts of possession; or, when the right is severed from the land itself, by showing possession for long enough to raise the presumption of 'lost grant,' or under the Prescription Act by showing enjoyment for 30 years; or, when not so severed, he can claim a statutory title by showing uninterrupted possession for 12 years. The acts necessary to show possession depend largely on the circumstances of each case. It can be shown by old leases, payments of rent, licences, actions for trespass, accounts, surveys, and in other ways. A mere paper title can be challenged and displaced and it is necessary to show *in addition* possession in accordance with the title.

A right to 'common of fishery' may be established by showing use by a definite body of men such as copyholders of a manor. (This particular class will soon, however, be extinct owing to recent legislation.) It is not, however, legally possible for a body of freeholders to acquire a right in respect of their freeholds to fish to an unlimited extent for commercial purposes over another man's property.

3. *Some Legal Presumptions.*

In order to assist the ends of justice the Law sometimes 'presumes' things, when there is no contrary evidence to rebut them, and among the more important of these may be mentioned:

(*a*) The presumption that the owner of the land adjoining a river is entitled to the soil and fishery of the river to the 'middle thread' (*medium* *filum*) of the water. If, therefore, he lease the riparian land the lease will presumptively carry the fishing unless he reserve it to himself.

(*b*) The presumption that the owner of the soil of a river is the owner of the fishery as incidental to the ownership of the soil, and the corollary that

(*c*) The owner of a fishery is the owner of the soil and this presumption displaces presumption (*a*) (above) as to riparian ownership.

4. *Fishing in Canals, Ponds, and Lakes.*

In the case of canals, artificial water-courses, and reservoirs, the owner of the soil has prima facie the right of fishing, and the same thing applies to ponds, but it must be borne in mind that the Acts relating to canals and reservoirs, generally contain special provisions on the subject. With regard to large inland lakes there is more doubt, but the Public have no right of fishing in non-tidal lakes, navigable or otherwise, however large.

5. *Fishing Paths.*

The owner of a fishing has not necessarily the right to go along the banks, as it is possible in most cases to fish from a boat. The right can, of course, be acquired by a grant or by long usage. It is therefore important, if, say, an owner reserves the right to fish to himself, when he conveys away or leases land, that he should be precise in reserving also the right to go upon the land for the purpose.

6. *Leases.*

It must be remembered that if the right of fishing, apart from the land itself, is let, the lease must be by deed under seal, and if an owner conveys away his land and reserves the right to fish, the latter becomes an incorporeal (bodyless) *profit à prendre* (right to take) and will also require a deed under seal to convey it. Such a grant by deed carries with it not only the right to fish, but also the right to carry away any fish caught, and a right of action against anyone who wrongfully interferes with the right.

FORM OF LEASE

The Lease should let to the Fishing tenant the exclusive (or as the case may be) right of fishing over the property in question (which should be shown on a plan attached), to hold unto the tenant for a term of . . . years from the . . . day of . . . 19 . . (determinable by notice as herein after provided) paying therefore the yearly rent of £ . . .

The Tenant should covenant with the Lessor to do all or any (as may be desired) of the following things :

(*a*) To pay the rent and all rates and taxes, including fishery rates payable in respect of the right demised.

(*b*) To observe the by-laws of the Fishing Board of the District.

(*c*) To keep a record of the fish caught.

(*d*) To protect the water from poaching.

(*e*) To pay the wages of a water-bailiff.

The Lessor should covenant with the Tenant :

That the Tenant should quietly have hold and enjoy the rights demised without any lawful interruption from the Lessor (all unlawful interruption he is naturally insured against).

There should be a clause providing that if the rent is not duly paid or if the Tenant does not observe the covenants the Lessor may re-enter.

There should also be a clause that on the Tenant's death either the Lessor or the Tenant's representatives may by giving written notice one month before the next anniversary of the commencement of the term determine the lease on such anniversary day.

It should be remembered that in England unless the fishing rights are specially reserved by the owner when granting a lease of any land they will belong to the tenant, but the contrary holds good in Scotland.

In connection with the question of Leases it may be as well to consider the apparent effect of some recent decisions on the rating of sporting rights, which include fishing. The result is somewhat anomalous, and it seems not unlikely that subsequent legislation or judicial decision may alter the legal position as it appears to be at present. In one of the cases rights of sporting over agricultural land were severed from the land, but not let, being reserved and enjoyed by the owner himself, and it was held that the rights were excluded from the statutory definition of 'agricultural land' in what is known as the De-rating Act, and were not relieved from rates. In the other case, the owner of the land let some of it to tenant farmers, and farmed some himself, the remainder being waste land. He let the sporting rights over the whole land to a third person, under a mere agreement contained in correspondence and not under seal, there being no grant by deed. It was held that he was not rateable in respect of the sporting rights as there was no legal severance of such rights from the occupation of the land.

The net result would seem, therefore, to be that the incidence of sporting rates can be avoided, at present, by giving to another a mere license to fish, either by word of mouth or by letter. It is, however, hardly necessary to point out that such an arrangement has inherent disadvantages of its own.

7. *Penalties under Larceny Act.*

Under Sections 24 and 25 of the Larceny Act, 1861, anyone who takes fish in any water running through land adjoining or belonging to the dwelling-house of the owner of such water or to the person having the fishing rights commits an indictable misdemeanour and can also be taken before a Justice, and fined up to £5.

In any other private water he can be fined up to £5, or £2 only if angling in the daytime. His rod and line may be forfeited in lieu of damages, which will not be payable in addition, if he is only angling in the daytime. A tenant of a fishing cannot seize tackle, however, without the owner's authority.

8. *Statute Laws relating to Fishing.*

Just as in the shooting volume of this series it is stated that the Game Act of 1831 is the Sportsman's Bible for shooting purposes, so with regard to fishing throughout England and Wales we have the much more recent Salmon and Freshwater Fisheries Act of 1923, which consolidates the statutory law on our subject[1] (running previously to no less than 19 Acts).

[1] With regard to Scotland there are a series of statistics of similar nature terminating with the Salmon Fisheries (Scotland) Act, 1869.

The crying need for this species of legislation is amply demonstrated by the condition of the Norwegian fisheries to-day. A vicious circle seems to have become established ; an undue amount of netting has depleted the stock, but the people live by the fish and cannot stop netting without starving.

A great deal of the Act deals with the formation and duties of Fishery Districts and Boards with which we will deal later (see heading D below), but it also treats of the following matters which supplement the common law on our subject, already dealt with in the foregoing portion of this chapter :

A. Prohibited modes of taking fish.
B. The times of fishing for fresh-water fish.
C. Obstructions to the passage of fish up rivers.

It will be understood that the following is only a summary of the more material points which are of interest to the fisherman.

A. (1) No one must use a light or throw any missile into the water or use any fish roe for the purpose of taking Salmon or Trout.

To use any otter lath or jack,[1] wire or snare, spear, gaff or tailer (except as auxiliary to a rod and line), strokehaul,[1] snatch,[1] or other like instrument.

(2) No one must take Salmon or Trout which is 'unclean' or immature. Immature means less than 12 inches from tip of snout to cleft of tail for Salmon. Unclean means about to spawn or recently spawned or not recovered from spawning.

B. (1) No one must take or attempt to take Salmon with a rod and line during the close season for rods. The Close season shall be the period fixed by local By-laws or if none a period between Oct. 31st and Feb. 1st.

(2) No one must consign or send by carrier any Salmon or part thereof unless the packet is marked 'Salmon'.

C. (1) No one must take or attempt to take any Salmon or Trout in its passage through a fish-pass.

D. Fishery Districts and Fishery Boards.

The Minister of Agriculture and Fisheries may make orders for the maintenance and development of freshwater fisheries within any area upon application made for that purpose. Such order may provide amongst other things for the definition of the area of a district, and for the constitutional incorporation of a fishery board. Application for an order may be made by a Fishery Board, the County Council, owners of a quarter of the several fisheries to be regulated, or any association of persons who are in the Minister's opinion sufficiently representative of fishing interests within the area.

1. Constitution of Fishery Board.

The Board consists of appointed, representative, and ex-officio members. The 'representative members' include representatives for net fishermen and for licensed rod fishermen for fish other than salmon. ' Ex-officio ' members include owners *or* occupiers of fisheries assessed to poor rate at a gross rental exceeding £30 p.a., and landowners of land of an annual value of £100 and upwards, having a frontage to any water in the District frequented by salmon, trout, or other fish, of not less than 1 mile, having the right to fish in such water, and paying licence duty. The ' appointed ' members are appointed by the County Council or Councils concerned.

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[1] 'Otter lath or jack' includes any small boat, board, stick or other instrument, whether used 'with a hand line,' or as auxiliary to a rod and line, or otherwise for the purpose of running out lures, artificial or otherwise.

'Strokehaul or Snatch' includes any device used with rod and line or otherwise, for the purpose of foul-hooking a fish.

2. Powers of Board.

A Fishery Board is given (*inter alia*) powers under the Rivers' Pollution Prevention Acts to stop water pollution or to aid local authorities for that purpose. It can take legal proceedings, purchase or lease fisheries and generally do anything for the development of the District fisheries.

3. By-laws.

A Fishery Board may make By-laws for the following purposes (*inter alia*) :

(*a*) To fix or alter the close season for Salmon, not to be less than 92 days, nor to begin later than Nov. 1.

(*b*) To prohibit the removal without lawful authority of any live or dead fish.

(*c*) To prohibit the taking of any freshwater fish of a size less than that prescribed by by-laws.

(*d*) To prohibit or regulate rod and line fishing during the night.

(*e*) To regulate the discharge in any fishing water of matter detrimental to fish.

(*f*) To regulate the use of any lure or bait in rod and line fishing.

(*g*) To determine the use of a gaff in such fishing.

(*h*) To protect, preserve, and improve fisheries in the district.

4. Licences.

The Fishery Boards are empowered to issue licences to fish for salmon and trout, and power is given by the Act to the Minister of Agriculture and Fisheries, to extend by order the provisions of that Act as to the grant of licences to fish, to freshwater fish, as well as to salmon or trout. This extension can be made in respect of a portion only of a locality, or for certain fish, or for the use of certain instruments only. If such licences were granted a right would be acquired by rod fishermen for freshwater fish to representation on the Fishery Board. Only the person to whom a licence to fish with rod and line is issued can use such licence, and any licensee, member of a Board, water-bailiff, or constable may require any person found fishing within a fishery district to produce his licence and furnish his name and address.

5. Powers of Water-bailiffs.

Water-bailiffs may be appointed by the Boards who are empowered to search any basket, bag, pocket or other receptacle capable of carrying fish if likely to contain fish illegally caught and seize any fish liable to be forfeited. They are deemed for the purposes of the Act to have the powers and privileges of a constable, but must produce their instrument of appointment as their warrant. They may enter lands adjoining waters, apprehend persons fishing illegally at night, and do other kindred acts which need not here be particularly specified.

6. Legal Procedure and Penalties.

Offences against the Act may be dealt with under the Summary Jurisdiction Acts or, in other words, by Justices of the Peace, and any person found guilty of *an offence against this Act* shall, except when a special penalty is expressly provided by this Act, be liable to a fine not exceeding £50 and in the case of a continuing offence to further penalties. It may be mentioned that all the offences stated or implied in the foregoing summary fall within the category of ' offences against the Act.' A justice is not to be disqualified from hearing a case, because he is a member of a Board, but must not, of course, hear a case in relation to his own land or fishery.

9. *Conclusion.*

The following salient points emerge from the foregoing for the special attention of the owner of any fishing. He should be careful to preserve evidence of his ownership by granting written licences to fish to anyone to whom he wishes to give a day's sport, and should preserve all leases and documentary matter. If driven to defend his rights he should exhaust every means to prevent actually engaging in what generally proves costly and lengthy litigation. All grants of fishing rights should be made under seal, and it is very desirable to specify the modes of fishing which are to be permitted.

It is important to remember that a right of access to a fishing must be reserved to avoid disputes and disappointment.

Care must be taken to use the right of fishing in such a manner that the enjoyment of neighbouring owners is not interfered with, unless the possibility of a costly lawsuit has no terrors.

To prevent pollution and encourage the proper protection of water an active interest should be taken in the proceedings of the local Board of Conservators.

CHAPTER FORTY-ONE

THE COOKING OF FISH

By Wyndham Forbes

'By the boiling salt and water, which is of a higher temperature than that of common boiling water, the albumen is coagulated, and the curdiness preserved.'

Davy : *Salmonia*, 1828.

FISH having been caught and killed, the question of what to do with them naturally arises. It depends very much on the species and on the water from which they have been taken. Some sorts, such as the chub, should be given away—to a pig or a cat for choice, for few human beings will thank one for such a gift, even if they have the civility to accept it. And from some waters even the best of fresh-water fish taste muddy and nasty. This, however, can be cured. Should the owner be the happy possessor of a clear stream welling out of its native chalk or limestone, or other suitable supply of running water in which the fish can be confined alive, twelve to twenty-four hours' captivity therein will cleanse its flesh. But if not, the fish's mouth should be filled as full as possible with salt and hung in a cool place till next day ; when the salt will be found to have melted and dripped through the fish into the bowl placed to receive it, and its flesh will be no longer muddy. To make certain perhaps it will be well to refer to the pages of Walton, in which will be found those elaborate methods of treating river fish which pleased our ancestors, but which the modern cook is but too apt to scorn as being too much trouble. Moreover, I suspect that the quality of our small beer, and certainly its price, and that of wine, have altered considerably for the worse.

The simplest method the writer has seen was that used by a Corean near Chemulpo. Having, after a display of unlimited patience, captured a small spratling—I could not see of what sort—he immediately dipped it in a pot of soy which he had at his waist, and devoured it forthwith. Here one saves trouble indeed, but it is not an example that I have ever wished to imitate. It may be very good—I do not know—I never tried. But I have partaken of raw fish in Yokohama or Tokyo. Sea bream, I believe. It is cut into thin slices and served on a sort of toy glass gridiron, accompanied by relishes of soy, seaweed, and a greenish substance tasting rather like horse-radish. And it is certainly excellent. It may be noted that the soy (soyu in Japanese) used in the Far East is not that which your grocer will sell you for colouring soup ; but a thick dark sauce rather like Worcester sauce without the spice that spoils the latter as far as my palate is concerned.

After all, other raw fish is eaten in the West besides oysters : there are few nicer relishes before a meal than smoked salmon, Bismarck herring, or anchovies. Trout and various other fish, especially mackerel, may be smoked easily and with profit. They should be cleaned and put into brine, or a mixture of salt and sugar in equal parts dissolved to the same strength and allowed to soak for about twelve hours. I improvised an excellent smokehouse on a small scale out of three tea-boxes, one of which had both top and bottom removed and replaced by sticks from which the fish were hung. The lower tea-box had its top taken out, and the upper one its bottom, and they were placed so as to form a chimney. A door was cut in the sides of the bottom box, and replaced by an arrangement for regulating the draught, by means of two tin sheets with holes in them, one fixed and the other sliding. A similar device served the same purpose at the top. The fuel consisted of oak dust, as its producer insisted on calling it ; for he alleged that it was dust of the wood, and not of the saw ; and the draught had to be so regulated that it smouldered and did not flame. It was contained in an ordinary cooking-pan, which could be pushed through the door. Dust of a resinous wood, such as deal, gives a harsh taste to the fish. Juniper, however, is said to be ideal. The time during which the fish is smoked is a matter for judgment, as my fuel did not burn so steadily as to enable me to determine it exactly.

Perhaps the simplest method of cooking fish is by boiling them, and it is here that the English cookery book, and the misguided cook who follows it, fail most lamentably. How often, for example, have I been given boiled cod which tasted exactly the same as baker's white bread, or rice pudding, or the cabbage of a poisonous green hue which the same cook delights in. Some books, however, give the correct recipe for salmon, but for white fish maintain that it should be made into soup, which is then thrown away ; and the tasteless body, from which all the goodness has been extracted, should be served with a strongly tasting sauce of shrimp, anchovy, or whatever it may be, to replace the excellent flavour which their ignorance has destroyed. Here is the correct method. The water should be well salted, until it is at least as salt as the sea, and will float a fresh egg easily. It is then brought to boil furiously. Some fish, such as perch and sea bream, must be scaled ; others merely require cleaning. Drop them in the boiling liquid, which will thereby be put off the boil, and as soon as it boils again, or in about a minute push the pot to one side so that it merely simmers. Ten minutes will be found to be the correct time of cooking for a fish of about a pound in weight. Big fishes may be cut in slices, which are afterwards reassembled on the dish in their correct order ; or if many fish are to be cooked two pots may be used, one boiling and the other simmering, the fish being scalded for a minute in the former. The reason for the salt is that salt-water boils at a higher temperature than fresh-water, and the scalding seals the outside of the fish by coagulating the albumen, and so retaining all the soluble goodness in the body of the fish, which would otherwise be dissolved out into the water. The time required varies directly as the thickness of the fish—not as its weight, as some cookery books state, which varies as the cube of a linear dimension.

A good way of cooking small fish, by which I have often supplemented my frugal sandwiches, is to make a small fire, wrap the fish in three thicknesses of wet paper, and place it among the embers. When the paper is burnt the fish will be cooked, but this method only applies to quite small fish, such as the Dartmoor trout and those of Highland burns. Larger fish may be cooked in papers as follows: Cut off the head and tail, and clean. Mix some butter with chopped parsley, chives and shallot, salt, pepper and lemon juice, fill the belly of the fish with it. Roll the fish up in grease-proof paper, fasten up the ends, and heat it in a slow oven or on a gridiron over a slow fire, placing the fish so that the edge of the paper is uppermost. Cook for about three-quarters of an hour, open the paper carefully so as to catch the melted butter in a cup. The fish being turned out on a dish this butter and herbs are poured over it, a squeeze of lemon added, and serve hot.

When grilling fish in the ordinary manner over a quick fire the gridiron should be heated nearly to red heat before the fish is put upon it, otherwise the fish will stick to the bars. About twenty minutes suffice for fish of a pound weight—they should be turned when the lower side appears to be done. The ordinary sauce for such is Maître d'hôtel, which consists of butter melted with chopped parsley, chives, pepper and salt, and a squeeze of lemon added afterwards.

To fry it is necessary to use enough oil or butter to cover the fish well—and here I would remark that only the very best olive oil or butter should be used. Oil should be bought as olive oil; avoid 'salad oil,' a description which covers a strange mixture and may be ground nut, palm oil, or coco-nut oil, or any other that does not taste too nasty. The medium, whether oil or butter, should never be thrown away after using—it can be strained and clarified and used again and again provided that the pan or pot in which it is used is clean, and that it is not heated enough to make it fume. When first heated it will boil for a while, until the water it contains is boiled away. After that, when the boiling is over, it may be heated considerably before it fumes. The fish if small may be fried whole—larger fish are better split open. Roll or dust them in flour; or, better, beat up an egg, roll the fish in breadcrumbs made by baking bread in the oven till crisp, and then braying it fine in a mortar, pass the fish through the beaten egg and crumb it again: or, best, use oatmeal instead of breadcrumbs. The oil being pretty hot, and no longer boiling, introduce the fish—about ten minutes or a quarter of an hour will be enough. Large fish are best filleted or cut in slices, according to size. A salmon cut in good thick steaks and cooked so is particularly good for breakfast.

In France, where there is no duty on it, wine is commonly used for boiling fish. It is mixed with water in equal parts, till there will be enough to cover the fish completely when it is put in *later*. Add salt, pepper, a bunch of parsley, thyme, and bay, and a clove or so; and one or two carrots and a large onion cut up. Boil for three quarters of an hour, and only then, while it is still boiling, should the fish be put in. After about a minute more boiling, put it to the side of the fire to simmer till the fish is cooked. Then take it off the fire, leave the fish in the liquor until the time of serving, when dish it up like boiled fish, and serve with the sauce proper for the sort of fish cooked. Teetotalers will kindly observe that all the alcohol will have been boiled away long before the fish goes into the pot. If red wine is used this method is called 'au bleu'—it is rarely used, 'cependant la matelote se fait toujours ainsi,' says my French cookery book. What is la matelote ?—for the new woman has not yet invaded this profession. I looked in my dictionary, which says, a 'sailor's dance.' Presumably in a tavern on shore !

Fish is also excellent when steamed, which takes about twice as long as boiling and produces a somewhat similar result. No liquid should be added to the fish when so prepared, as the steam from the water-jacket of the cooker, entering the inner compartment, will prevent its becoming too dry.

The best trout are those whose flesh is red ; in the Erne at Beleek, the trout are often redder than the salmon, and are in every way entirely commendable : some lochs also produce very red fish. White-fleshed trout may be served with more elaborate sauces, such as the following : *Trout à la genevoise ;* boil the trout in white wine (see above p. 430). Place in a pan a piece of butter the size of half an egg—let it melt—add mushrooms, chopped parsley and shallots. When these are cooked, take a crust of bread or toast which has been cooked in the wine with the trout, —drain it—add it to the sauce in the pan and moisten with two or three spoonfuls of the liquor in which the fish has boiled ; salt and pepper, but not too much as there is already salt in the liquor. Drain the trout, and place it on the crust and so serve.

Pike taken from a clean water, such as a Highland or Irish loch, are excellent—in England they are usually muddy, but this may be remedied as mentioned above. The *ova* or roe must be removed and destroyed, they often act, if eaten, as a violent purge and emetic. They may be cooked in almost any of the ways already mentioned, but great care must be taken when serving and eating them to avoid their needle-like bones. Here is a Russian recipe—*Brochet à la Russe.* Clean and scale the fish, put it in a fish-kettle on the fire, add salt and pepper and half a pound of butter melted. Put the fish-kettle into the oven, baste from time to time. When the fish has taken a good colour pour in sour cream so as to half cover the fish ; when cooked slide the fish on to a hot dish ; leave the fish-kettle on the fire till the contents are somewhat reduced ; pour a little over the fish, and serve the rest in a sauce boat with the fish.

Perch may be cooked like pike. Their *ova* and roe, however, are good and wholesome.

Tench should be plunged in boiling water for a minute before scaling and cleaning, to remove their slime, which tastes muddy. They are then cooked like eels. Their flesh is more gelatinous than the preceding. The skin is considered a delicacy by those who like calves' head, turtle, and other such gelatinous foods.

Eels, however, are skinned, as also are lampreys, which are cooked in the same way. The latter should be scalded, like tench, before skinning. Take a sharp-pointed knife, pass it round the neck so as to turn the skin back. Hold the head in the left hand ; take hold, with a cloth in the right hand, of the detached flap of skin ; when the skin can be pulled off. Then cut off the head. Eels may be cut up and fried ; or stewed in wine, either red or white, with herbs, onion, mushroom, etc. ; the wine should then be thickened with a sauce béchamel ; when removed from the fire stir in thoroughly the yolk of a raw egg. Replace the fish in the sauce, serve all together in a deep dish, and eat it with spoon and fork out of a soup plate.

The Japanese do not skin their eels. A spike is run through the head, so as to hold it down on a board, and the body held in the left hand close to the shoulder, to prevent the fish from wriggling. A sharp-pointed knife in the right hand pierces the shoulder on one side of the backbone, and both hands are moved together cutting off a fillet. Another similar stroke on the other side of the backbone leaves the skeleton and insides attached to the head. The fillets are then fried.

Remains of fish can be prepared in many ways. Cold boiled fish and salad make an excellent mayonnaise, which is perhaps really the best way to serve them, but if a hot dish is required the following recipes are both good. *Kedgeree*—break up the fish, remove the bones, mix with hot boiled rice, pepper and salt, and warm it if necessary. The rice should not be boiled too much ; each grain should be separate. Just before serving stir in one or two raw eggs, and return it to the fire for not more than two minutes. *Croquettes*—break up the fish, remove the bones. Prepare a thick sauce béchamel (see below) which mix with the fish—if white fish, a little chopped cooked bacon or chopped cooked mushroom if available, or both, may be added, and pepper and salt. When cold the mixture should be stiff enough to roll it into balls. Roll the balls in breadcrumbs prepared as above (p. 430), egg them, and crumb them again. Fry in very hot oil or butter till of a good colour. Both these methods are excellent with salt or smoked fish. In Spain kedgerees have mussels, cockles, or other shell fish, and chopped parsley, onions or fennel added, forming a dish called *Aroy à la Valenciana.*

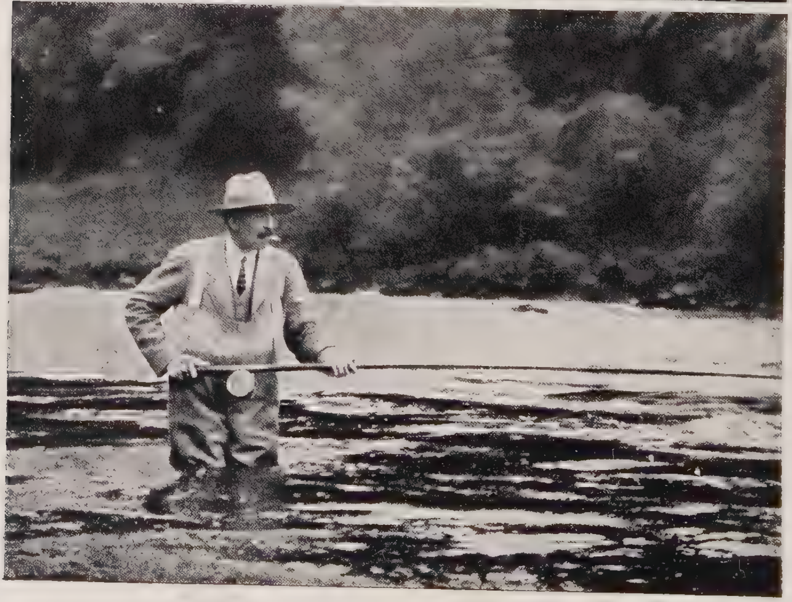
Sauces are primarily employed to moisten an otherwise somewhat dry food, or to add a flavour which goes well with the dish ; also as a vehicle for carrying relishes giving variety to each mouthful. But they are too often used to cover bad cooking or an inferior quality of material. Fish of delicate flavour hardly require them : but the coarser, the worse-conditioned and the stronger-flavoured are often rendered palatable by their use. Simple good butter, melted, is all that is required for salmon or red-fleshed trout. To it may be added chopped parsley or fennel, or more elaborately a sauce, Maître d'hôtel, is produced as described above—this for fried, grilled, or baked. Boiled or steamed fish demands, when good, no more than a squeeze of lemon juice—which can also be used with fried fish.

Béchamel sauce, referred to above, is made as follows : Melt a piece of the very best butter about the size of two walnuts, mix well into it one spoonful of flour, stir it thoroughly. Add a wineglass of milk or cream ; salt and pepper. This is called melted butter by English cooks, who consequently have to call the real thing oiled butter.

Parsley and *fennel* sauces are made by adding chopped parsley or fennel which is cooked in the sauce. Fennel sauce is traditional for mackerel, but goes very well with other white fish.

Dutch sauce. Beat together two yolks of egg, as much butter melted, half a spoonful of vinegar, and some salt. Stand it in a saucepan of boiling water, taking care that none of the water gets into the sauce. Stir till it begins to thicken.

Black butter. Place the butter in a saucepan, let it melt and darken, but take care it does not burn. Add a few parsley leaves,—let them fry—pour it over the fish. Pour into the hot saucepan a spoonful or two of



Plates 102 & 103

ROE'S POT, ABERDEENSHIRE DEE

(SEE PAGE 419.)

ERNEST CROSFIELD ON THE HEREFORDSHIRE WYE vinegar ; when it is hot add it to the dish. Personally, I only care for this sauce with skate.

Mayonnaise. Crush some chives or onion with a lump of sugar, so that it absorbs their juice. Melt this in a little tarragon vinegar. Put in a bowl the yolks of one or more eggs, with a few drops of the vinegar to each egg and salt and pepper. Beat it with a fork till they are well mixed, when add olive oil drop by drop, slowly at first, but faster afterwards, beating all the time. When sufficient oil is included, the sauce will feel slightly thicker. More of the vinegar can then be added to taste, being well beaten in. This is used for cold fish with salad. Lemon juice can be used instead of vinegar.

Herrings are eaten with *mustard* sauce. Add mustard to taste to Béchamel or Dutch sauce.

A *Spanish* sauce. Boil some mild red peppers for about a minute, or dip them in boiling water. Bray them into a smooth paste with raw onion or garlic, adding a few drops of oil, salt, and pepper. This goes well with herrings, sprats, and some of the coarser fishes.

Garnishes. In my opinion, nothing should be used as a garnish which is not intended to be eaten. For fried, grilled or baked fish the best is fried parsley. Heat the oil or butter till it is on the point of fuming. Dip the parsley in, using tongs or a very long spoon to hold it, for it splutters like the devil—or you may cover your hand with a cloth. It takes a very short time to cook nice and crisp. Put it aside to keep warm while you fry some more. Raw parsley may be used for boiled or steamed fish, and slices of lemon for either. Shrimps, prawns, crayfish, oysters, and mussels are also used. Oysters if used with fried fish, should be crumbed and fried. The Portuguese oyster is, perhaps, best for this purpose, as it is larger than the British, and almost, if not quite, as good. With boiled fish they may be brought to the boil in the liquor found in their shells, and added to a sauce Béchamel. Mussels are opened by heating them in a dry saucepan ; take them out as fast as they open, remove the shells, warm up the flesh in your sauce.

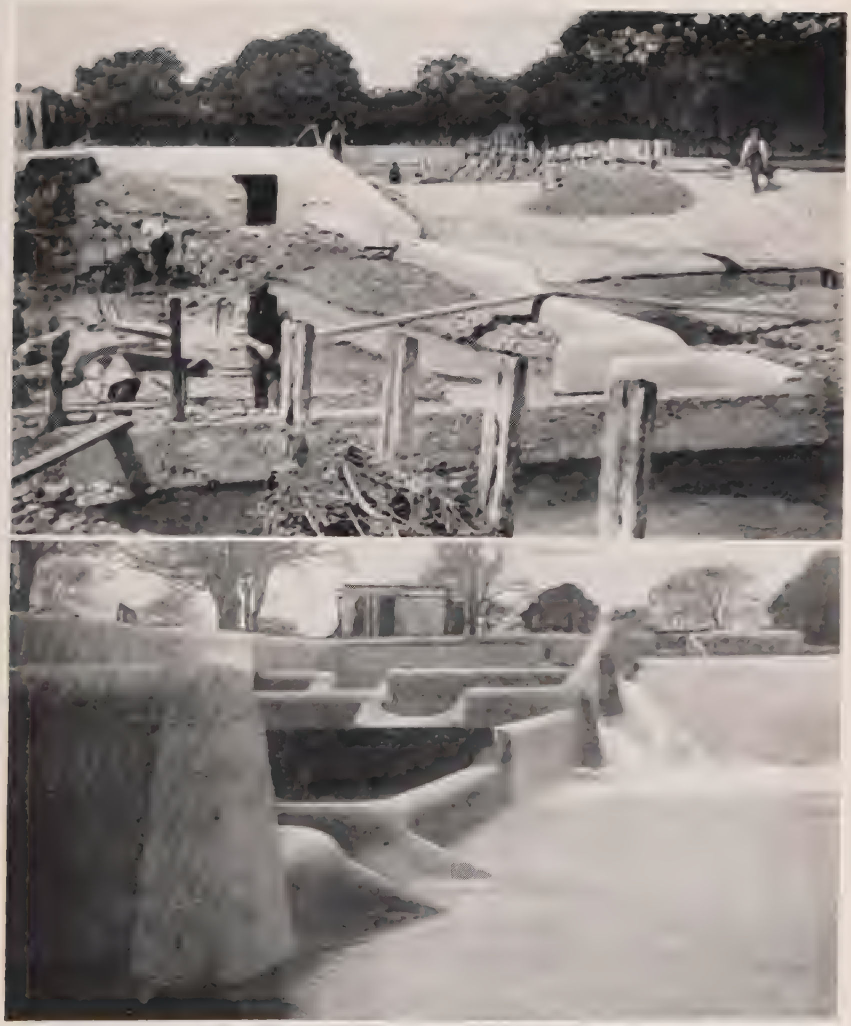
CHAPTER FORTY-TWO

THE SALMON-RIVER

§ 1. *The care of the river.*

THE most important work with which a river-keeper can occupy himself, after the fishing has closed for the year, is the repair of the banks and paths. High spring-floods and those in summer following a prolonged drought make fatal inroads on the defences, unless the bank is built up again here and the camp-sheathing is restored there. A particularly-careful watch ought to be maintained at points that feel the full force of the river, even in a spate of only moderate height, such as the inside of a curve and especially where the current swings across and hits the bank with added intensity, and also along the hollow face of a low deep-cut cliff overhanging a stream, whether it be flowing steadily downstream, or may have been reversed, as in a backwater. The tendency of a river to undercut a bank is extremely common and yet, owing to the secrecy with which it does its work, is often overlooked until some luckless angler breaks through the crust and falls into the invading water. If due care be taken always to keep the banks in a state of repair, the danger is small ; but I strongly recommend an owner or lessee of a fishing not to delegate this duty entirely to others. It should be regarded in the same light as the watch and ward over the dykes in Holland or the ceaseless labour of maintaining a wall that is built to deny entrance to a hungry sea. If he finds undoubted evidence of the wear of the current, he should have camp-sheathing placed as a protection, or stakes driven in, behind which the bank can be reconstructed out of stones of all sizes and the top of it capped with soil and turfs. I have undertaken repairs of this kind with the most unpromising materials and have succeeded in rebuilding the bank, so that it proved far more lasting than I had thought possible. The large branches and small trees that come down as flotsam in time of flood are particularly useful for the purpose and, when placed across a gap, make an excellent *point d'appui* for vertical sticks to rest against. Within this barricade stones of all sizes can be wedged, so that the chasm in the path or in the bank is solidly filled. When the wear of the stream has been permitted to have its own way for some years and considerable inroads made on the riverside path, the footway will have to be cut farther back, an obvious remedy that river-keepers rarely apply on their own initiative.

It is also the duty of a keeper to see the stiles across the river-path are in repair and are constructed to allow a fisherman in waders to get over them in comfort. If barbed wire has to be introduced into the construction of a stile, it is as well for it to be covered with sacking at any point where it might come in contact with waders. The best of stiles or snicket-



Plates 104 & 105

CUMBERLAND DERWENT: THE FITZ WEIR

TOP: CONSTRUCTION WORK WITHIN THE COFFER DAM.

BOTTOM: THE WEIR HALF-FULL, SHOWING THE SHAPE OF THE PATENT LIPS, WHICH PERMIT WATER TO FLOW DOWN WITHOUT THE CREATION OF *WHITE* WATER. (SEE FIGS. 208 TO 211.)

gates are unsuitable on a riverside path ; I prefer an ordinary wooden gate made to close automatically under the pull of a well-greased wire-cable, running over a pulley-wheel to which is attached a four-pound weight. Gates that are difficult to fasten ask to be left unlatched !

If there are seats and shelters at various points along the beats, they should be looked after. It will be easy to arrange that the seats be taken in at the end of the season and stored away from the rigour of winter. Wherever it is possible make these storm-shelters from materials that harmonize with the surroundings. A magnificent example of the successful treatment of a monolith of slate is shown in plate 106.

Fishing-huts beside a private water are in another class and should offer more room and comfort to those who use them. Many I have seen are quite able to accommodate one or two persons for the night. Outside one I know there stands a rod-rack and, near to it, a bucket of water in which the cast may be kept damp, while the fisherman is having a meal. That fishing is extensive and the huts some distance from the house ; a few spares are kept in them, such as a few flies, some tackle, string, rope and the usual materials for effecting repairs in an emergency. And, wherever the river-banks are notorious for the numbers of vipers they harbour, a small quantity of potash permanganate ought always to be at hand in the hut—and a flask of whisky !

Hedging as well as ditching is one of the jobs that occupy farmhands during the short days of winter ; and every competent keeper spends part of the close season in cutting back the trees and branches that have thrust their new growth across the paths and the approaches to the river. Often an invading bough has made it impossible to fish in a favourite gap between the trees or bushes lining the river. All these encumbrances to casting and swinging a spinning-rod should be removed with the aid of saw, axe and hedging-knife.

Derelict branches float down on a spate and are sometimes stranded across a pool. An unsympathetic farmer or a telegraph linesman has used the river as a convenient dumping-ground for coils of old wire. Such dangerous snags ought to be dragged out as soon as possible ; and the employment of a small grapnel, attached to a length of rope, is the most practical way of doing it. Water-logged branches are definitely heavier than water and are apt to sink down to the bed of the river and there lie in wait for the minnows and spoons of an unsuspecting angler. As soon as a certain restricted area in a pool earns an evil reputation for the loss of spinning-baits, the grapnel should be introduced to its task of clearing the water of the usual snag, a sunken tree.

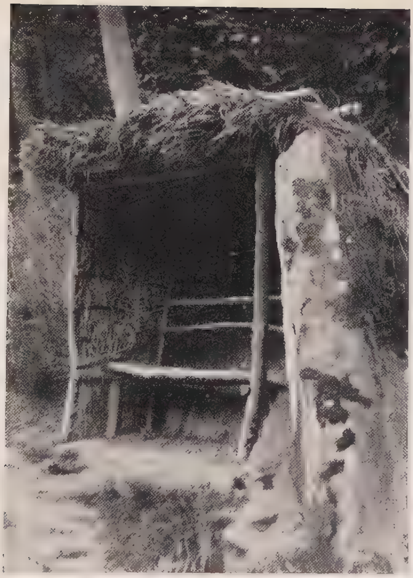
The main fishing-hut needs much more full equipment than that just described. Around the walls there should be fixed rod-shelves, along which the rods can lie flat and in far greater security than across a line of leather-protected nails. Narrow drums, two feet or so in diameter, are used in one hut I know to receive the wet lines, as they are taken straight from the reels, when the day's fishing is over. If the hut is some distance from the house, spares of all kinds ought to be kept in it : rod, reel, line and wading-staff ; casts, gut-strands and traces ; flies, preserved baits, artificial minnows, spoons and hooks ; the gear wanted in ordinary repairs, wax, adhesive tape, rings and varnish. There should be an accurate spring-balance always at hand, a tape-measure, or a measuring-board for fish, as well as such commonplace stores as hammer, nails, screws, screwdriver, mallet, knife, saw, billhook or hedging-knife, rope, stakes for camp-sheathing, a crowbar to lift stones, a spade, a bucket, a sack of Portland cement and a small stove, preferably of the *Primus* type. Lastly, keep a fishing-tackle catalogue, in case something has to be ordered in a hurry and the use of a reference-number is customary; field-glasses, camera, test-tubes, some of them filled with a preserving-solution of formalin to take specimens of *ephemeridæ* etc. (see *Trout Fishing from All Angles*, pp. 135 and 136); some notebooks and writing-materials.

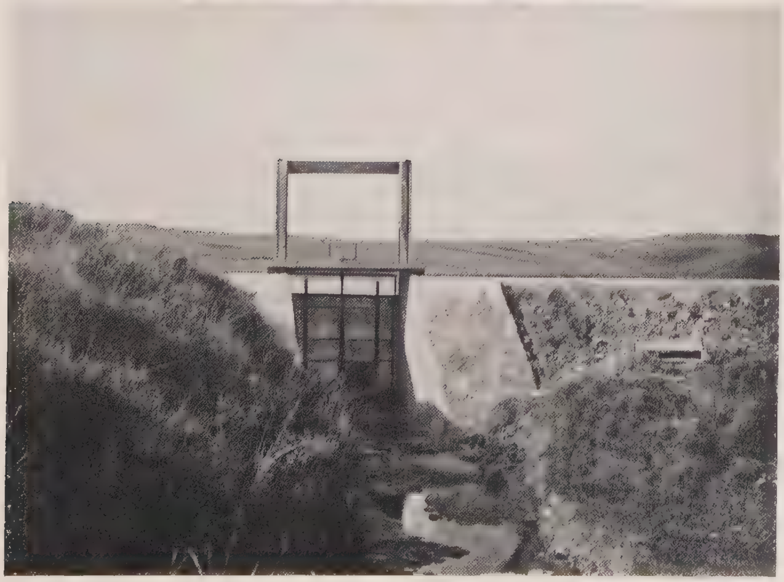
§ 2. *Improving a river.*

Before undertaking the work of trying to alter the set of the current, or to make a pool hold fish where formerly there was a solid flow of thin fast water, or of creating lodges in which salmon may find easy water for resting, common courtesy demands that you consult with your neighbour opposite, to see how your proposals will affect his sport. This sort of negotiation requires very delicate handling! Also it is as well to remember that the last word rests with the river itself and that the ultimate result of altering the flow is unlikely to be exactly what had been designed. Often, indeed, the outcome of all your labours and what you had intended are not even remotely similar.

In a dull pool of even flow, it is generally possible to introduce some interest by the employment of groynes, walls of stone strongly constructed and cemented up, that project across the current and set up a circular motion in the water that produces a scour. In time, a hole is formed in the gravel and a corresponding bank is raised elsewhere out of the material displaced. The probable effect of a substantial jetty is to constrict the river-bed and thus to impart some liveliness, near that point, to a comparatively-sluggish stream (see under: § 3). It is possible this would augment the oxygen-content of the water. All these experiments require most careful handling and scrupulous regard should be paid to neighbouring owners or lessees. And nothing must be done to hinder the free passage of salmon upstream; this is a matter that closely concerns the Conservancy Board controlling the river, the Ministry of Agriculture and Fisheries and the Fishery Board for Scotland respectively.

A wise owner will restrict his activities to the placing of concrete blocks to form lies for fish where formerly there was no protection from the force of the current. And keep in repair a croy, groyne, or jetty that enables him to reach parts of the pool that would otherwise be hard to fish properly or even have to remain virgin water (see pl. 53). The question of constructing new groynes should only be undertaken on the advice of an expert. If, however, it is practicable to build out a platform or to construct a drawbridge out to a convenient rock in mid-stream, follow one of these courses rather than disturb the bed of the river. Rock walls too sheer to climb along form the banks of certain pools of some rivers in Norway and even in these islands, so that the water can only be covered by casting from platforms and crow's-nests specially constructed for the purpose; and there are numberless local problems, all requiring special solutions.





Plates 106 & 107

WELSH DEE, NEAR CEFN

HOW A SHELTER CAN BE MADE TO HARMONIZE WITH ITS SURROUNDINGS. (SEE PAGE 435.)

LAGGAN: ISLE OF ISLAY, ARGYLLSHIRE

A DAM TO HOLD UP THE SURPLUS WATER TO FORM A LOCH, FROM WHICH IT CAN BE RELEASED TO PRODUCE AN ARTIFICIAL SPATE.

§ 3. *On salmon-lies.*

There are many stretches on most rivers possessing no places in which salmon can find ample cover, while they are resting or are waiting for suitable times and conditions to continue their ascent. Were salmon always on the move towards the spawning-grounds, there would be no fishing with rod and line, because it is only the waiting fish that takes the angler's lure.

Also, there are many pools holding salmon, in which they cannot be persuaded to rise ; these pools clearly possess some feature not conducive, or lack one that is. Where such conditions exist, they can easily and at a small cost be altered to yield valuable water for rod-fishing. A thorough inspection will soon indicate where the necessary alterations should be made ; and, by the introduction of groynes and boulders at the best spots, the number of resting-places and the length of the fishable water will be increased.

Stretches of flat uninteresting river can be broken up and made fishable by the judicious planting of round boulders (fig. 205). These are cheaply constructed on the spot of cement-concrete, and are easily handled into position by the use of the iron loop cast for this purpose into the top of the boulder. Great care must be taken that the loop does not project above the surface of the boulder ; otherwise there is a danger of it fouling a fishing-line. Three legs of iron tubing are cast into the underside allowing the boulder to maintain a firm grip of the river-bed, even in a flood. The reason for making the boulder spherical is that silt and sand are not deposited on the downstream side of it.

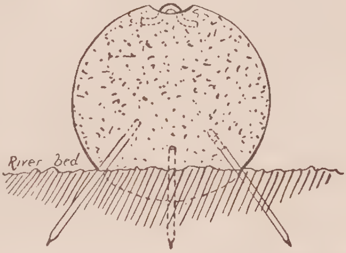


Fig. 205.

AN ARTIFICIAL BOULDER.

These are cheaply constructed of concrete. The iron loop at the top greatly assists handling into position.

When a number of these boulders are used, the flow of the river is broken into small streams, proceeding in various directions ; these disturb the surface and thus add to the covers already provided by the boulders. Further, the likely places for catching fish are greatly augmented.

Pools deficient in fishing-areas and having even-running smooth surfaces may easily be improved and the erosion of banks remedied by the employment of groynes.

It is a very common practice to build groynes in a downstream direction; this usually fails to deflect the current towards the middle of the river and more often than not the flow becomes more concentrated, giving rise to erosion of the banks of a yet more serious character. It is difficult to convince some people that the better plan is to place the groyne pointing upstream.

The ideal type is made of stone and concrete ; in cross-section it is almost triangular and is from twenty to thirty feet long. The upper surface slopes down from the river-bank towards the nose, which is out in midstream. The nose of a groyne must reach right out, in order that the full benefit may be obtained and the heel set well into the bank to avoid flood-scour behind it. The longitudinal axis of the groyne is generally about forty-five degrees to the flow of the water and is pointing upstream; but it will readily be appreciated that this angle cannot be a constant quantity, because it must be modified to suit the bends and counterflows existing in a particular spot. Where there is a difficulty in predicting the result of introducing a groyne, it is advisable to build the top groyne first, note what effect it has and then build the lower groynes with the help of the information just obtained. A stretch of river with groynes on both banks will soon deepen in the middle of the bed, where it can be fished from both banks. This particularly applies to parts of the river where there is great width and much of the water could not be reached with a line.

Enthusiastic owners and lessees can easily spoil a pool by planting boulders and constructing groynes in the wrong places. Nothing involving a radical alteration ought to be done without first obtaining the best possible advice. Sometimes the difficulty consists in the shape of the boulders encouraging silt collecting in the vicinity of the blocks, a situation much disliked and consequently avoided by salmon. **Thomas Rook.**

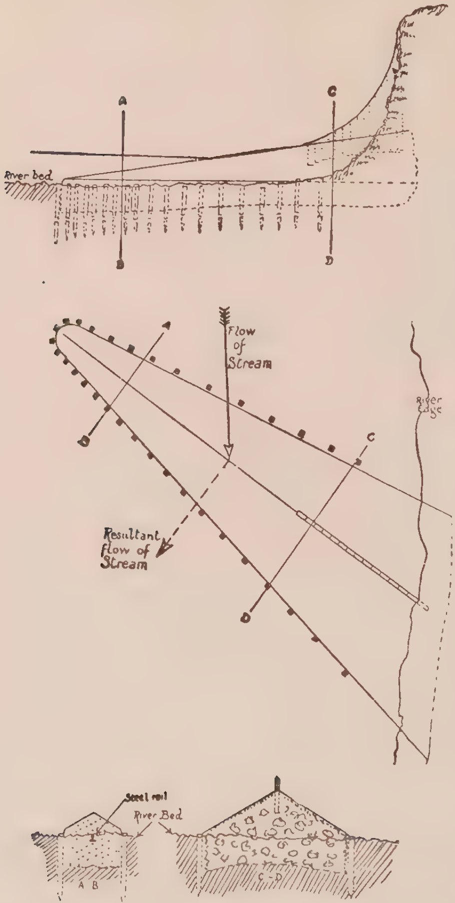


Fig. 206.

A GROYNE BUILT IN AN UPSTREAM DIRECTION.
The two top drawings show an elevation and plan of the groyne; while those below are cross-sections at A–B and C–D respectively.

§ 4. *Concerning pollution.*

All the care and money expended in smoothing the path of the salmon is largely wasted, if there be a barrier of strong pollution through which ascending salmon and seagoing smolt have to pass. Also toxic and other elements in the water destroy much of the dissolved oxygen that would have assisted salmon and trout to fight successfully against the ravages of furunculosis and fungus. Some varieties of pollution are not poisonous in themselves to salmon, but are fatal to the food on which the young parr feed, or cover the stones and weeds with a glutinous slime, so that *algæ* (see *Trout Fishing from All Angles*, p. 417), on which the *larvæ* of many water-insects graze, are unable to obtain a footing. On the whole, pollution to-day is fatal more on account of its oxygen-reducing propensities than by reason of its lethal character. And solidly-moving water is more easily affected than the broken sparkling streams and rivers that come dancing from the highlands ; and those which, after the raising of winter's hand from the hollow hills, are filled with snaw bree, that is, snow-water mixed with half-melted wisps of snow from the corries, are fortunate in possessing at that time an extremely-high proportion of life-giving oxygen.

The whole subject is as vast as it is vital to health, to the fishing-industry and to sport. The control of pollution concerns those streams that still are filled with a good stock of salmon and trout. The reduction and gradual abolition of this disgrace to an ill-constructed industrial system is all the hope that can be extended to the once-famous streams, such as Thames, Mersey and Trent. The last river is, I am glad to say, under the energetic management of the Clerk to the Board, Mr F. H. Heald, very slowly moving back to its ancient rank as a great English salmon-river. *Fish cannot yet breed in it ;* but wanderers from the Yorkshire Esk and other Northern streams are beginning to ascend in gradually-increasing numbers, so that it has become necessary to plan salmon-passes to admit them, later on, to the Derwent. A proof of the presence of Trent salmon was shown by seven found poisoned this autumn by sewage just below Derby—and very big fish they were !

The records of prosecutions by the above-mentioned Board show abundantly that pollution in the Trent Area (and presumably elsewhere) is seldom due to industrial effluent being poured directly into a river. By far the greater part of these waste products find their way into the main sewers, which are unable to deal with them in addition to the augmented load due to domestic sewage flowing from new housing-areas. An excess of glucose is the result and the ground of the sewage-farm is choked and ceases to function as a filter. This makes one conclude that sanitary authorities and the *Ministry of Health* are sadly to blame for their failure to provide additional means of sewage-disposal, so that over-loading of this kind could not have occurred. It is astonishing to learn that domestic sewage is far more dangerous to fish-life than industrial effluents, provided there is, in the area served by the mains, a diversity of manufacture, so that the acids and alkalis, for example, shall partially neutralize one another. The whole question is too complicated to be discussed here and needs expert exposition. I have only mentioned these few facts, because they lead one to take an entirely-new view of the problem.

§ 5. *Of sundry matters.*

The theme of the enemies that surround salmon from the day the *ovum* is laid down, until it comes back as a full-grown fish to spawn on the redds, has already been touched on in the Prologue to this book. But it is so capable of expansion, that I feel justified in returning to it again.

There is great need for the protection of the fish, as they are entering the estuary, from illegal netting and from being taken at times when all nets are required by regulations to be lifted. This period of inactivity, which is in these islands enforced for twenty-four or thirty-six hours every week of the net-season, is known as a *slap*. Sunday fishing, both for rod and net, is barred by statute in Scotland. I should like to see a reduction of netting-hours by the extension of the weekly slap to forty-eight hours and also a fair proportion of spring-fish allowed to pass through unhindered, either by opening the net-season a little later, or by having two half-weeks of *slap*.

As man learns, he becomes more ingenious. The rules laid down for the control of netting ought from time to time to be revised, in order to counter any unfair advantages tacksmen, that is, the men who work the nets, have been able to obtain without actually breaking any rule. All rights of netting in fresh-water, such as that in which coracles are employed, should be fairly valued and compulsorily acquired by the Conservancy Board of the river.

Under Scots law, coastwise netting is permitted and is much used. These stake-nets in the sea are illegal in England; but it is said that fish taken in the sea are in far better condition than those netted in the estuary. Sea-nets are, in their turn, robbed by seals. I was told of this by George Green, then a sergeant in the River-Tweed Police. Some fishermen who were mending their nets along the edge of Montrose Bay noticed a seal close to the shore and in the vicinity of a bag-net; shortly after they observed it enter the net. Later in the afternoon, they examined this particular bag and discovered in it the skin and skeleton of a salmon, but not a particle of flesh. There was a roof to the trap and no possible means of escape, except through the entrance by which salmon make their way in. This narrow slit is kept constantly open by slips of whin threaded at intervals through the meshes. Two of these were covered with seal's fur. The whole time the seal was forcing its way into the net, catching, killing and neatly skinning the salmon and making its escape, it had to remain under water!

The passage up to the spawning-redds is far easier than it was in the middle of the last century, because organized poaching is somewhat rare; but where the top waters are close to mining-areas, a certain amount of trouble is to be expected. As for poaching in the more restricted sense of a man fishing privily on another man's preserves, this is a matter for river-watchers and bailiffs. Poaching is a highly-technical and subtle sport, about the whole science of which I should be glad to see a book written in this Library. Snatching salmon on the redds is not included in this honourable term.

The pike does an unsuspected amount of damage to the young stock of the river, although I should not counsel their entire removal by netting and wiring. The presence of a few pike is all to the good; they take the unsound part of the stock and prevent it from breeding and perpetuating weak strains. Otters do a small amount of damage to salmon and seatrout; but it is negligible compared with the pleasure every fisherman feels in having the occasional company of these animals. The use of the otter-trap at the foot of a *slide* is peculiarly detestable. If otters become too numerous, it is far better to give the keeper orders to shoot one or two than to use methods that condemn the animal to a lingering death in the grip of a trap. And if you are fishing a river and otter-hounds come along, do not say where you have just seen the quarry cunningly lie up. Only a false fisherman will betray another!

There is an indefinite amount of *ova*, fry and parr taken by trout, chub, kingfishers, herons etc. The harm these do is small. But I should certainly not allow cormorants and gulls to undertake marauding expeditions far up the river. Occasionally terns wander inland along the waterway and delight the heart of everyone who sees their hesitating flight; they should be protected during the little time they can spare for fresh-water contentments.

There is only a fixed amount of food in a river, which determines the head of fish that can be supported; and, if the river be devoted to salmon-fishing, no encouragement whatever ought to be extended to trout. Whether this animal ought to be exterminated or not is a hard question to answer. On the whole, I think it should, as, in the early stage of their lives, young trout compete successfully with salmon-parr. They win more food by their vitality and by their gregariousness; but the seatrout is still more greedy and satisfies its hunger at the expense of the other two species. Is it possible to control brown trout and seatrout for the benefit of salmon-parr? I doubt it.

The salmon stands in most need of protection, when it is on the spawning-redds. If this is afforded the stock of smolts in a river, the redds of which have been adequately watched, will be great enough to ensure a proper return of salmon. The danger lies more in the fairway of the river through which the fish will have to ascend, in barriers of pollution and of difficult water at a fish-pass, for it was the water above the sill, not the boiling caldron beneath, that made the sweet singer of Alysoun speak of his spirit as 'wery so water in wore.' Clear away yet more of this pollution, which is a blot on our economic life, and make easy the fairway of the rivers, so that salmon may ascend at any water and at any time and travel and breed throughout its length, from the solidly-moving lower reaches to the crystal waters among the high hills. Through the medium of these simple remedies, which are so difficult to apply, the salmon-rivers of these islands will soon be brought back to their full yield of food, health and enjoyment. The easier the fairway, the better will be the condition of salmon, when they reach the redds, and the easier the passage of kelts and smolts to the sea.

The upstream journey of the Atlantic salmon has not the gigantic length of that accomplished by those which run up the streams draining into the Pacific, an *anabasis* from which there is in many instances no downward path. The distance up to the head streams of the Shannon is about two hundred and thirty miles, to those of the Herefordshire Wye, below the skirts of Plynlimmon, is about one hundred and thirty and many of the finest streams in the British Isles are less than one hundred miles in length. Beside the eighteen hundred miles of the Yukon, these lengths sound like those of rivulets and hill-streams! And, after all, salmon travel in the sea far greater distances than they are called upon to cover when they have entered the fresh. Three hundred and forty miles in seventeen days and two hundred and fifty in seven days are extreme examples of marine rates of travel, obtained by recapturing marked fish; these feats appear to call for more endurance than the upstream journey. But this is leaving out of the reckoning the necessity in the river of meeting cold water, variations of current, waterfalls and fish-passes. And, by making the two last easier to surmount, it is possible to smooth the way of the salmon.

§ 6. *Types of salmon-rivers.*

Throughout the length and breadth of the British Isles there are many different kinds of salmon-bearing waters, some characteristics of which are here put down.

These rivers can be divided according to their origins. There is the Aberdeenshire Dee, a notably clear stream, issuing from Dee Well under the shoulder of Braeriach in the Grampians and passing through several bluish pools that have the appearance of being snow-fed. Right into the month of June, Dee draws upon the reserve of water stored in the snow-fields, a fact that has much to do with her crystal clearness. A few South-country rivers are spring-fed chalkstreams, such as the Hampshire Test, a type that is normally pellucid and free from spate-conditions. But the greater number of rivers are either burn-fed or moss-fed, or issue from lochs as fully-fledged streams. Examples of the former type are Don from the slopes of Ben Avon, Orchy, Tyne, Dart, Tamar, many rivers proceeding from the Irish bogs and others; and the Welsh Dee, the Herefordshire Wye, Ness, Shannon, Cumberland Derwent, Helmsdale and others, are of the loch-fed variety. The distinction is not vital and fortunately so, because it would be hard to place many rivers in their proper category.

Another way of comparing rivers is to note their characters.

Test, Beaulieu and Avon flow gently through the water-meadows of Hampshire with none of the traditional form of a salmon-river. They are perennially clear chalkstreams and always run at approximately the same level, any variations being due, in all probability, to the needs of drowners for water to refresh the meadows; and spate, in the Highland sense, is something unknown. Also, there is feeding that salmon-parr are nowhere else privileged to enjoy.

Compare with these the Aberdeenshire Don, that is hardly to be recognized as the next-door neighbour of the Dee. Its early course partakes of the character of a Highland river, but as soon as it reaches Inverurie it changes into a solid heavy stream, such as the Bedford Ouse or Trent, lined with all manner of water-loving vegetation and (here the comparison ends) holds a stock of famous brown trout, which for condition and size can hold their own with the average fish from Itchen or Test.

Down from the slopes of Plynlimmon, whence Severn also springs, comes Wye, at first a fast-flowing broken stream cutting its way through a rocky channel, then passing at the foot of great parks attached to the Border castles and later, having been joined by Lugg, becoming a canal, wide, solid and deliberate in its flow, but, none the less, the finest salmon-river in England at the present time. Actual canalization of a river can be seen in the lower reaches of the Irish Boyne, a dreary part of the river to fish. The parkland portion of Wye is reproduced in Shannon, but the latter is distinguished by the numerous loughs, including Derg, through which she passes in her two-hundred-and-twenty-mile journey to the ocean.

Tay and Tweed, Dee and Spey have boat-pools that are better so fished and the first two are wide enough in their lower reaches to call for the practice of harling, as a means of covering the water.

There is a moorland type of river, subject to sudden and heavy spate, thick water and fairly-rapid clearing. Such a river is up and down in the course of a few days, often leaving the salmon it has invited from the sea in pools and channels ill-supplied with water. Such are Dart and most of the rivers draining the high moors of Devon, Cornwall and western Somerset.

A special type of river is found on the island of Islay, where is Laggan (pls. 38 and 39). Climatic conditions are very mild the winter through, frost is rare, the river-vegetation and food-supply are luxuriant, the water itself is warm and everything is in favour of a full supply of salmon. In former times, the drawback was the speed with which spate-water ran down the river-channel and was dissipated in the sea. Steps have now been taken to impound water in lochans among the hills and to release just enough to cause a small artificial spate, at times when it is thought fish are waiting at the mouth in readiness to ascend (pl. 10). The creation of an artificial spate is too expensive in water to be employed in any but small rivers, because an elevation in level at the source of the spate of two feet or so is, after ten or twelve miles, noticeable only as inches ; but the continuance and amount of rise in river-level depends upon the head of water released. This impounding of water was tried with much success twenty-five years ago in Blackwater on the island of Lewis and also in Helmsdale, in Sutherlandshire. This brings to my mind a description of the latter river in Mr Calderwood's *Salmon Rivers and Lochs of Scotland*, page 225 : ' It is a river of beautiful running pools and gravel beaches, of low open banks and laughing shadows ; again, of rock-broken pools skirted with birch and alder ; yet again, of silent channels and sandy shores.'

Impounding the water, to cause a spate at will, is also reminiscent of widely-famous Grimersta, in the island of Lewis, in the first lochan of which the record catch of fifty-four salmon was made by this means. Grimersta is not a river in the accepted sense. It is true there is a mile of river leading to the head of Loch Roag ; but fish run right through to the first lochan and rarely are taken in this stretch. The main fishing-area is a chain of four lochans connected, end to end, by very short rivers. These sheets of water fulfil to perfection the requirements for loch-fishing for salmon : a clear gravelly bottom and shoal water.

Lastly, comes the deeply-eroded type of river, like Findhorn and Spean (pl. 45). Often the cutting of some gorge in the neighbourhood of the head waters is such as to deny salmon access to them. Spean at Spean Bridge flows through a rocky channel and continues to be difficult for ascending salmon for some miles below ; but a short distance above the bridge Mounessie falls form an insurmountable barrier to their progress.

This survey is neither exhaustive in treatment nor complete in its selection of types ; it is intended as an invitation to anglers to study rivers other than those with which they are acquainted and thereby derive help in solving their own problems.

CHAPTER FORTY-THREE

THE SALMON-RIVER

By Thomas Rook

§ 1. *Fish-passes.*

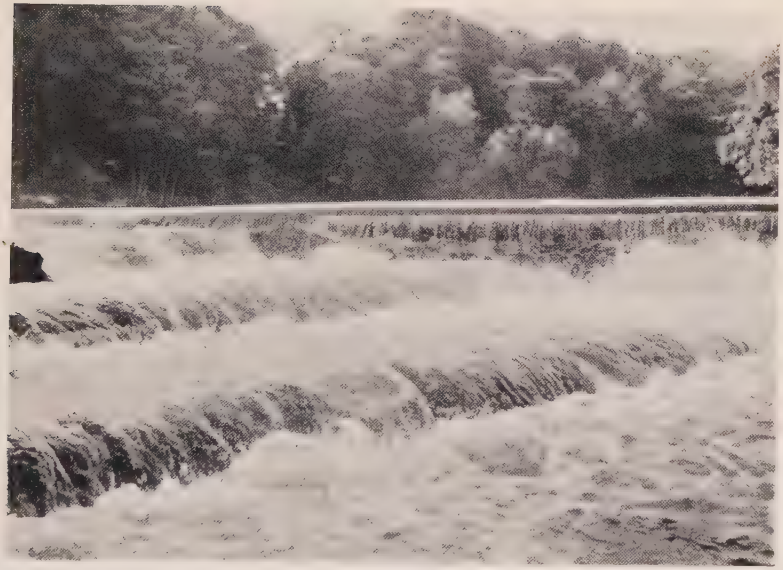
THE life of a salmon-river and the maintenance of a stock of salmon in it depends, amongst other things, upon the nature of the obstructions to be found in that river. Obstructions take the form of weirs or dams and falls, either natural or artificial constructions, and impede the passage of fish to a varying degree. A salmon, native to a tumultuous stream, will surmount obstacles more readily than will a salmon, born in a slow-flowing river, take to a barrier half as formidable. An obstacle in the lower reaches of a river is considered more objectionable than one higher upstream ; and salmon that enter the river in the very early months of the year appear to be more easily held up than are the salmon of summer and autumn. These are matters to be well kept in mind when prescribing remedies for improving a salmon-river.

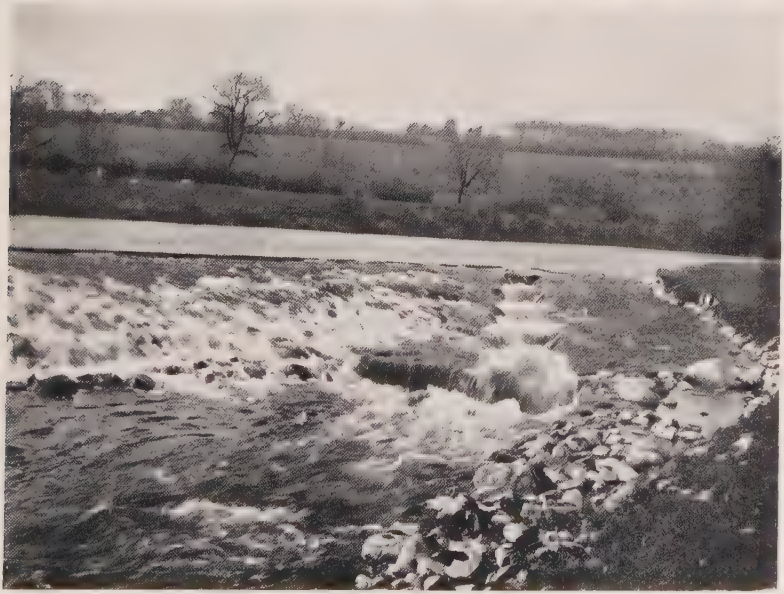
The need for man to interfere and assist salmon in their task of surmounting obstacles in their path becomes more insistent, as time goes on. Available salmon-rivers are few compared with the increasing demand by fishermen for them ; but the supply is diminishing as a result of pollution and the demand for water-power. Happily, water-power interests, when seeking Parliamentary powers, are being made to realize the importance of providing adequate fish-passes and compensation-water.

The type of fish-pass to be installed should be one which affords the ascending and the descending fish an easy passage over the different water-levels. It must be a pass that will be used by all fish and particularly by the early-running spring salmon. The ultimate success of the apparatus depends very much upon the position and approach to the pass at both its extremities. These are matters that can only be settled after viewing the site and after fully considering all the local information that can be collected.

It is of little use having a fine fish-pass, if the fish cannot locate the entrance of it ; and this becomes one of the greatest problems the designer has to solve at the outset. Many fish-passes fail owing to one or another point not having received full consideration. In some cases lack of funds is a deciding factor and compels the designer to offer a too modest design, much against his better judgment. A pass that is too modestly designed may lack some important feature upon which depends success. It might be of a type which, for instance, gives no rest to the fish using it ; or the passage through it may turn out to be more difficult than the way over the obstruction.

A fish-pass is designed for a special set of conditions and any one design will not fit in with the requirements of another site. The best fish-pass is that of the natural river with no obstructions. The next best is one which provides easy stages or lifts with ample cover for the fish.





Plates 108 & 109

WELSH DEE: BETWEEN LLANGOLLEN AND BERWYN

AN EXAMPLE OF A BAD WEIR FULL OF *WHITE* WATER. (SEE PAGE 448.)

CUMBERLAND DERWENT: THE CASTLE WEIR

THIS IS MERELY AN AUXILIARY FISH-PASS, AS FISH CAN EASILY ASCEND THE SLOPE TO THE LEFT OF THE PICTURE.

There is a great difference between the content of air in sea-water and that in river-water that has just passed over a weir. There is a substantial difference in temperature, too. These differences are more marked in the colder months of the year, at a time when spring salmon leave salt water for fresh. Being sensitive to varying conditions such as these, fish might be shy of passing through areas so disturbed and hang about waiting for better times, before continuing their run upstream. So it is with a fish-pass, aeration must be at a minimum, if the fish are to take to it at all periods of the year. A fish-pass at its lower end should debouch into the river just at the point where salmon are wont to rest ; and this will be in quiet pools where the river-water has freed itself of the excess of air produced in its passage over the weir. It is here that full use is to be made of the outfall of water from the pass. The flow must be directed into the river at a predetermined angle, in such a way as to constitute an attraction to the fish and draw them from the greater river-volume. It is not so easy to do this, especially where there is a powerful counter-attraction such as the tail-race of a power-station or a waterfall. In the former instance, the fish-grating (placed to prevent fish reaching the turbines or mill-machinery) is shaped to serve as a guide along which fish, working upstream, feel their way and eventually reach and find themselves in the outflow from the pass.

Regarding the head of the pass, local conditions again enter into the settlement of the position. It is usual to allow a fair depth of water outside the head of the pass into which fish halt for cover after their ascent. Descending smolts and kelts must be able to find the entrance ; and, where there is a chance of these preferring to descend by the weir rather than by the pass, a deep pool must be allowed at the base of the weir, into which they can plunge. Smolts can fall a considerable distance without suffering any damage, provided there is ample depth of water to act as a cushion at the end of their fall.

Rubbish passing down the river with every flood will cause a great deal of trouble, unless the water-inlet is properly designed. It is quite easy to see how floating material finds its way into the pass, but it is most astonishing how heavy matter like gravel from the river-bed lifts and gets into the pass. When the pass is situated at one side of the river, protection should be sought against the inroads of gravel washed overland in times of heavy flood. The main wall abutting the land should be heightened to the required extent to keep back flood-driven *débris*.

Varying water-levels give rise to difficulties in supplying the pass with that amount of water necessary to keep it efficient at all times and conditions. A minimum-flow is first worked out and the head of the pass is designed, not only to keep to the minimum, but also to guard against an increase, due to the river rising rapidly in flood or to a decreased demand for water at the power-station. Variation in flow through the pass is undesirable, for an ascending fish will turn back again, if the flow drops, and an increase of flow over the minimum is so much wasted water, at any rate, in the eyes of the power-converters. It must be remarked that much less water will take a fish over an obstruction than would attract it to a place, so that a considerable inducement ought to be given fish to leave the main stream and enter the pass. Once it has started on a comfortable journey, little more water than allows free play for its

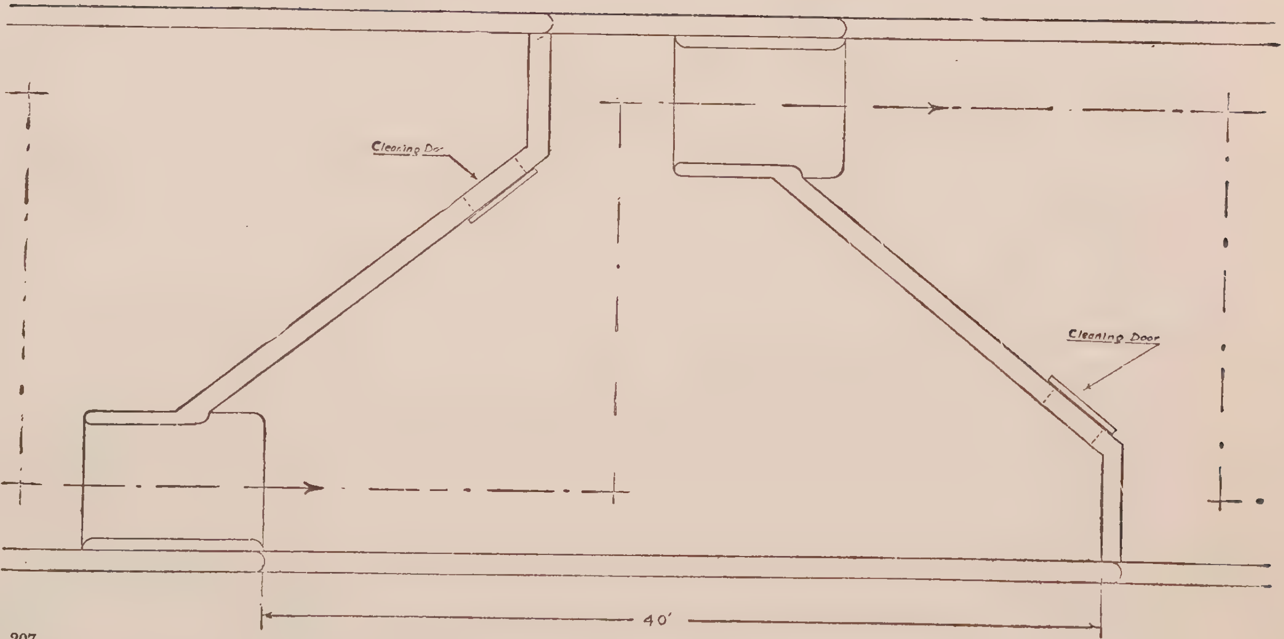
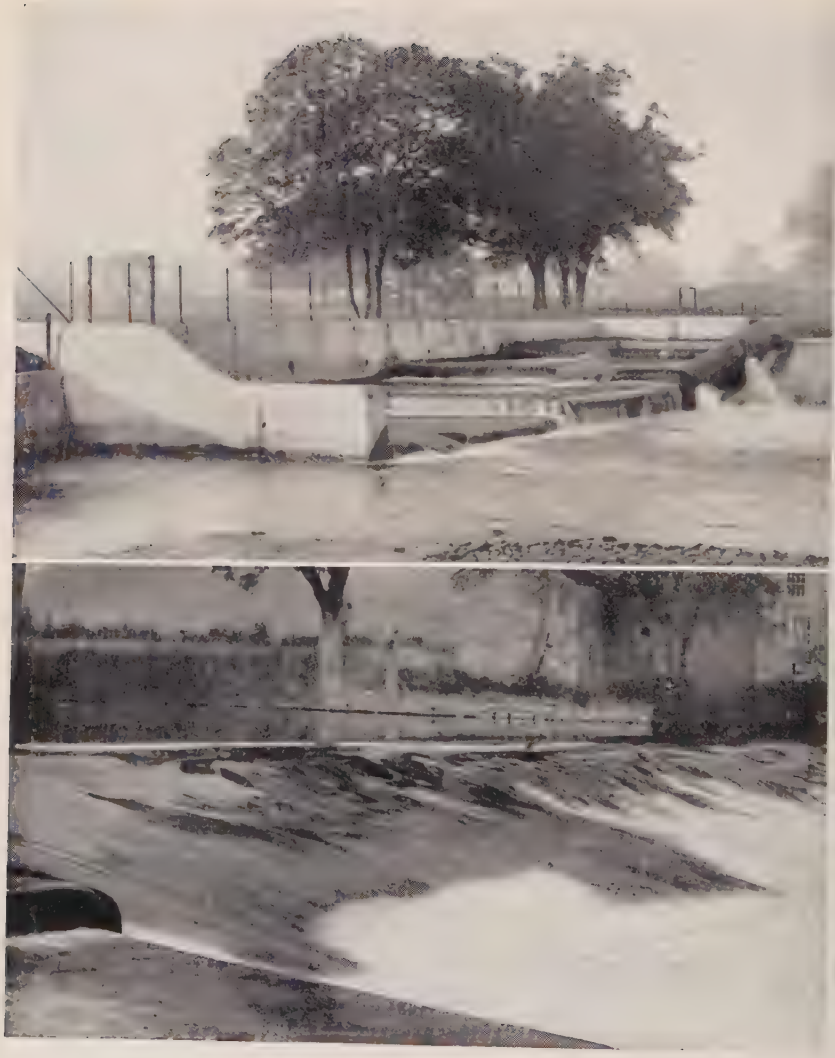

Cleaning Do
Cleaning Door
40′

Fig. 207.

PLAN OF PART OF A FISH-PASS DESIGNED BY THOMAS ROOK.



Plates 110 & 111

CUMBERLAND DERWENT: THE FITZ WEIR

THE TOP PLATE SHOWS IT IN WORKING ORDER; THE OTHER IS A VIEW OF THE SPILLWAY FROM THE LADDER.

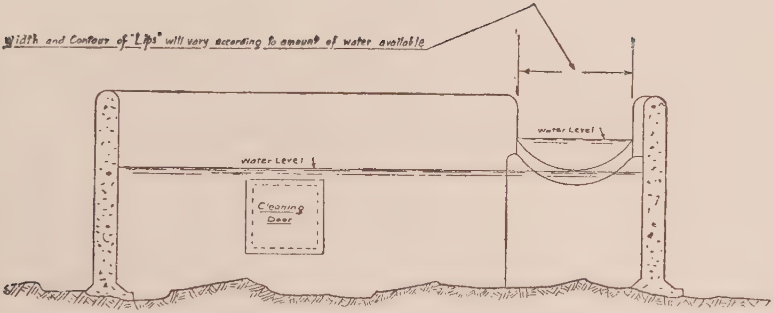

Width and Contour of "Lips" will vary according to amount of water available
Water Level
Water Level
Cleaning Door

Fig. 208.

A SECTIONAL ELEVATION OF THE FISH-PASS ON THE OPPOSITE PAGE, LOOKING UPSTREAM.

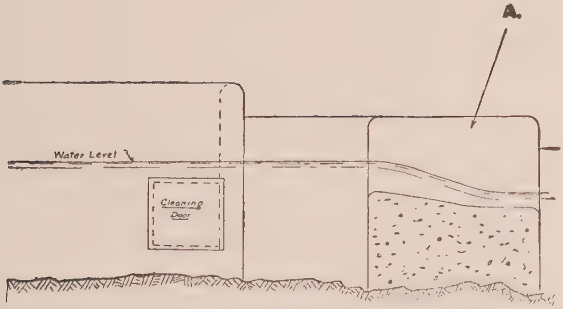

A.
Water Level
Cleaning Door

Fig. 209.

SIDE ELEVATION OF PART OF THE SECTION SHOWN ABOVE.

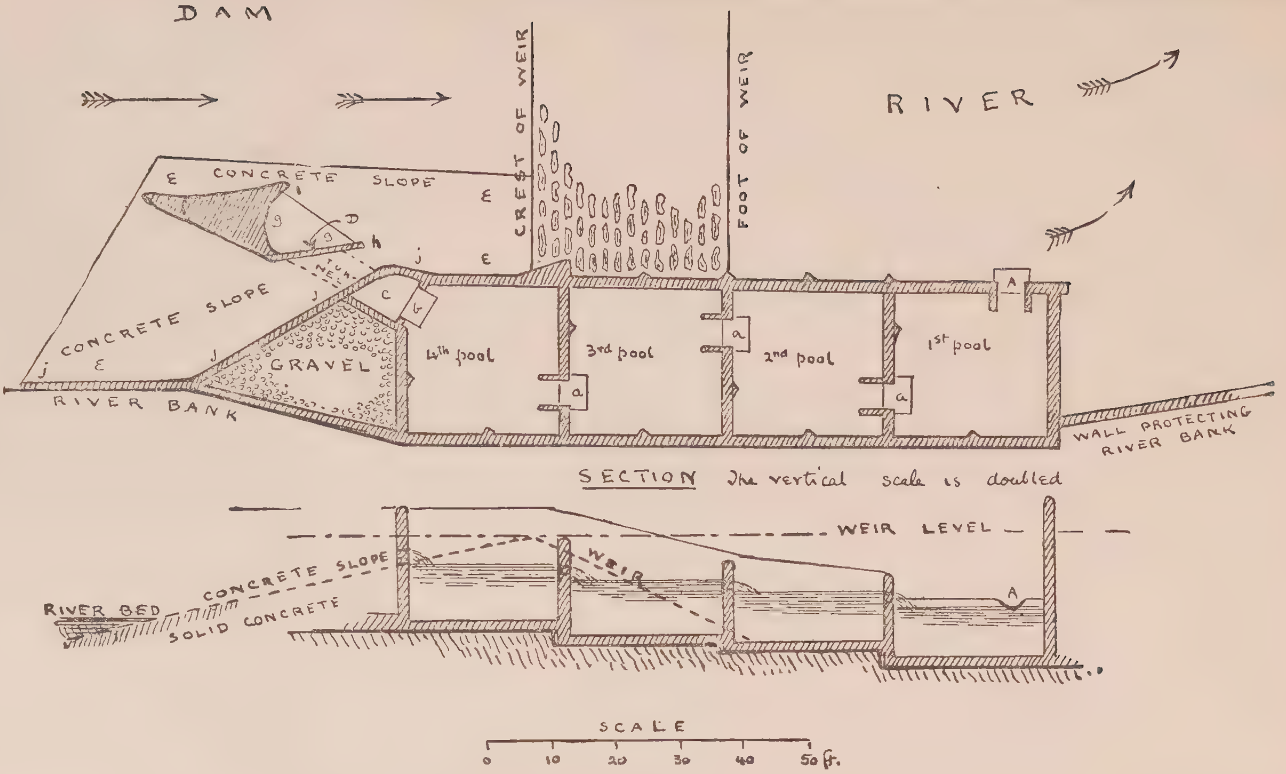
'White water,' which discourages fish from ascending, is not produced by this design of 'lip' (A). (See also page 448.)

tail is required at each lift in the pass. Whenever more water is available, it is better, of course, to give the benefit of it to the pass for additional cover and to attract the fish.

A salmon-pass should conform to certain principles. Aeration should be absent, the stages or jumps easy to negotiate and ample cover should be afforded ; these are a few of the important matters to be incorporated in a design. When the amount of compensation-water is decided upon, the steps or jumps between pools are designed to give a smooth streamline flow to that amount of water. Stream-lining is necessary to avoid undue disturbance and the production of aeration, which, once formed, is difficult to get rid of, may increase in amount all the way down the pass and result in the outflow being a seething mass of *white water*. A fish-pass embracing the points above will be a very much more useful construction than a rough and ready affair which makes bad use of the available compensation-water. Indeed a good pass can be made at less cost and yet be just as efficient. Resting pools ought to be of sufficient depth to give cover. In this direction, it is best to excavate the pools roughly and leave the floors with projecting boulders amongst which fish will rest. The walls, also, may be left rough or faced with excavated material and so remove any objection to the construction on the ground of it being artificial. Fish of all kinds will be able to ascend and descend by a pass of this type. In a river where eels are looked upon as a source of revenue, there are other means available by which both the younger and the older members of this family may pass and repass an obstruction, should they not like the salmon-pass.

Mention has been made of fish-gratings placed to prevent fish entering areas containing machinery. The two places to watch are the water-intake and the outlet from a power-station, where, in the absence of suitable protection, great numbers of fish will be destroyed. The Salmon and Freshwater Fisheries Act of 1923 provides that all artificial channels supplying mills with water and the outlets from such works are to be screened off. Gratings erected too far from the main stream will cause a great deal of dissatisfaction to the fishing-interests, because it is found that fish cruise about the grating and keep to a limited area during their repeated efforts to get through. Thus they become an easy prey for poachers and at the best will be delayed considerably in their ascent or descent of the river. It will be seen, therefore, that the most suitable site for the grating is as near the main river as practicable. The intake-grating is made of a mesh small enough to prevent the smolts of migratory fish passing down to the mill, or to a place from which they are unable to return. The bars of this grating are to be placed at no greater distance from one another than approximately seven-sixteenths of an inch. Smolts descend to the sea during the early summer months, so that later, when the shoals have passed, the bars may be removed and a slightly-larger mesh employed. Local Fishery Boards are empowered to define at what periods of the year fish-gratings need not be used.

Tail-race gratings are there to stop the ascending fish and, as these fish are larger than smolts, the bars need not be so near together. The usual demand is that the mesh be three-quarters of an inch. In certain rivers these lower gratings need not be used during the winter months, during which period of the year few salmon are ascending.


DAM
RIVER
CREST OF WEIR
FOOT OF WEIR
E
CONCRETE SLOPE
E
E
D
g
g
h
j
E
TUNNEL
C
b
J
CONCRETE SLOPE
j
E
J
GRAVEL
RIVER BANK
4th pool
3rd pool
2nd pool
1st pool
a
a
a
A
WALL PROTECTING RIVER BANK
SECTION The vertical scale is doubled
WEIR LEVEL
WEIR
CONCRETE SLOPE
RIVER BED
SOLID CONCRETE
A
SCALE
0
10
20
30
40
50 ft.

THE FITZWEIR FISH-PASS.

Designed by Thomas Rook.

Fig. 210.

As the river drops after a flood, the water passing through a badly-designed weir very early becomes too thin for salmon to ascend or is of too small a volume to create in the main stream enough diversion to attract salmon to its frequently-inadequate opening. Many salmon arrive at the foot of the weir, are unable to make their way up and are trapped by the receding river within the small area of deep water at the base of the spillway. Eventually these fish retire into the next pool and become the prey of those fishing it. To include such a pool in the prohibited area for fishing is not practicable; it is, therefore, all the more important to improve the existing pass or to build a new one that will offer salmon easy passage on falling water and during the whole of the time they are running.

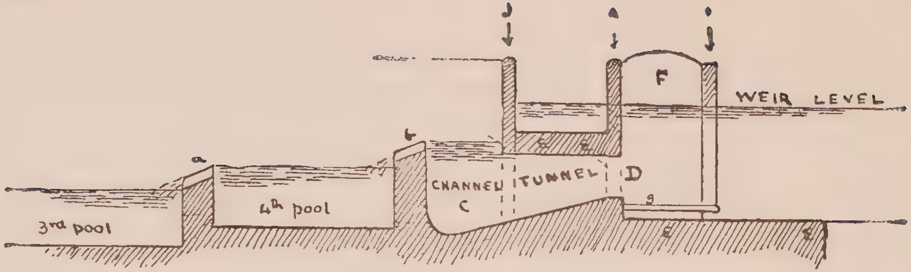
Mr Armistead has got out the design for an electrically-worked fish-lift. A photograph and a description of this will be found in Mr Calderwood's *Salmon and Seatrout.* In the same book the electric screen is described, a device by means of which fish can be prevented from entering certain areas of water, without hindering the flow of the river by a grating or by a weir or sluice. This is designed as a means of screening from ascending salmon or seatrout the tail-race of a hydro-electric power-station or of a mill. The screen consists of a line of hanging chains, weighted down and charged with six-cycle alternating current at about seventy volts or so; underneath, there is sunk an *earth* of iron pipe. Fish, encountering this, fly in the opposite direction and very few indeed are able to pass it.

The provision of suitable means of ascending changes in water-level are most important, because salmon are thereby able to run through, earlier in the season, spread over the whole river, make sport more general, ensure healthier conditions for themselves and occupy all available spawning-sites without having to expend so much of their strength in the arduous task of arriving at them.

§ 2. *Management of a Salmon-River, with particular reference to that part of the Cumberland Derwent controlled by the Derwent Fisheries Association.*

In and out of season, there is much to be done by the managemens and others in the working of a salmon-river used for sport. There it watching, repairs to property and river-banks to be effected in winter and summer and, during the fishing season, anglers themselves require a good deal of attention and the fishing-huts must be kept up to standard. In the ordinary way, the Conservancy Board of the river concerned appoints the number of watchers considered necessary for different parts of the year; but usually the number engaged is insufficient to serve all owners of waters throughout the watershed. Fishery Boards, as a rule, are rarely possessed of ample funds to expend in watching; and so it remains for individual owners and lessees to supplement the watching-staff, where they are not satisfied. The private watcher ought to give most of his attention to his own stretches, but, where all the bailiffs can agree and are willing to work with one another, it behoves him to lend a hand in watching other waters when required. *A salmon belongs to the river and not to any particular pool.*

The watcher's work can be made easier and poaching considerably lessened by spiling to prevent netting. There are many types of spiles


WEIR LEVEL
F
D
CHANNEL
C
TUNNEL
g
b
a
4th pool
3rd pool

Sketch section-plan of upper portion of pass
not drawn to Scale

THE FITZWEIR PASS.
Designed by Thomas Rocz.

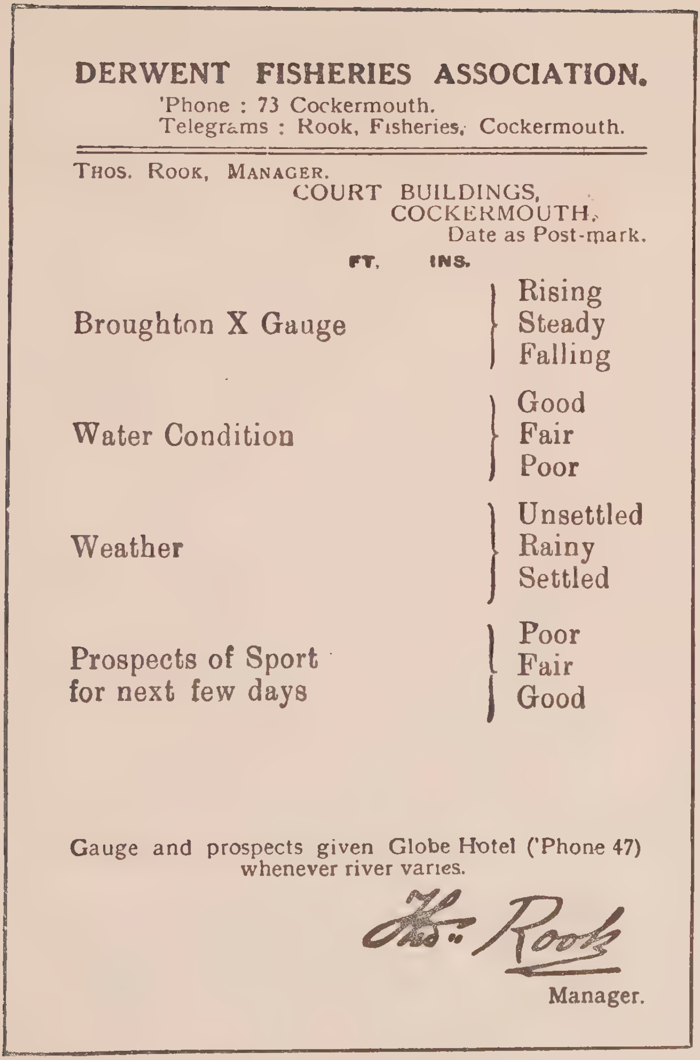
Fig. 211.

used and they are adapted to the pools that are to receive them. Some are driven into the bed of the river and others are not driven, but maintain their position by virtue of their weight. Whatever method is employed, it should always be borne in mind that the instrument can be often removed with less effort than was expended in fitting it. In spite of the great weight of boulders or steel rails, they are quite easily moved about, during the poachers' preliminary operations, owing to the apparent loss of weight of a body immersed in water. As a general rule, spiles of wood or of iron tubing prove more satisfactory than any other type ; but, at the same time, each pool must be treated after due consideration of the problems involved.

Wooden stakes vary in length from two feet six to six feet and iron-tube spiles are as long as ten or twelve feet. The spile is driven in, until only six inches project above the bed of the river, so that angler's lines and tackles should not get foul of them. If a spile is driven too easily, it should be withdrawn and a fresh place found. In every instance, the driven spile ought to be tested by two men doing their best to rock it loose. Much more than six inches may be left projecting above the bed in deep pools. In such places it is better to employ iron spiles made from steam-tubing, two to three inches in diameter. These are cut to the appropriate lengths and two iron pegs are welded at the top ; the lower end is pointed. The pegs serve the same purpose as the nails in wood spiles. The driving can be done from a boat in very deep water where it is impossible for poachers to take them out again. Deep pools are often used by bathers and when spiling operations are complete, sign-boards ought to be erected near the pool to warn bathers of the danger. There is a tendency for watchers to neglect a stretch newly-spiled ; this is a great mistake, for poachers are thus allowed time and opportunity to remove them. The pools ought to be frequently examined by the watcher, who must wade into the river to do the job properly ; and spiles he finds missing must be replaced as soon as possible. Poachers only draw those spiles which get in their way and are crafty enough to replace them, after they have finished netting, in order to cover their tracks.

Another duty allotted a watcher is to keep an eye on sewage and outfalls from works for polluting effluents. But many an alleged accident on the works could have been avoided had friendly relations existed between the two interests.

At the proper time of the year, trees and bushes are to be pruned and bushes planted in gaps on the deep sides of the pools. When both banks are under one control, as with the Derwent Fisheries Association, the deep sides can be effectively blocked to prevent fishing from that side. These pools are scheduled to be fished from the shallow bank. The Association prescribes from which bank certain pools are to be fished and in all places deep wading is prohibited ; and, for the benefit of the members, a map is given them on which is shown the pools numbered on the banks from which they are to be fished. A list of pools is also provided indicating the height of water at which a given pool fishes best. The height is based on that shown on the gauge at the fishing-house. Willows are the easiest to plant and provide good cover for the deep pools, but they want attention once a year to check the growth. The prunings come in useful for planting at other places. There are several



DERWENT FISHERIES ASSOCIATION.
'Phone : 73 Cockermouth.
Telegrams : Rook, Fisheries, Cockermouth.

THOS. ROOK, MANAGER.
COURT BUILDINGS,
COCKERMOUTH.
Date as Post-mark.

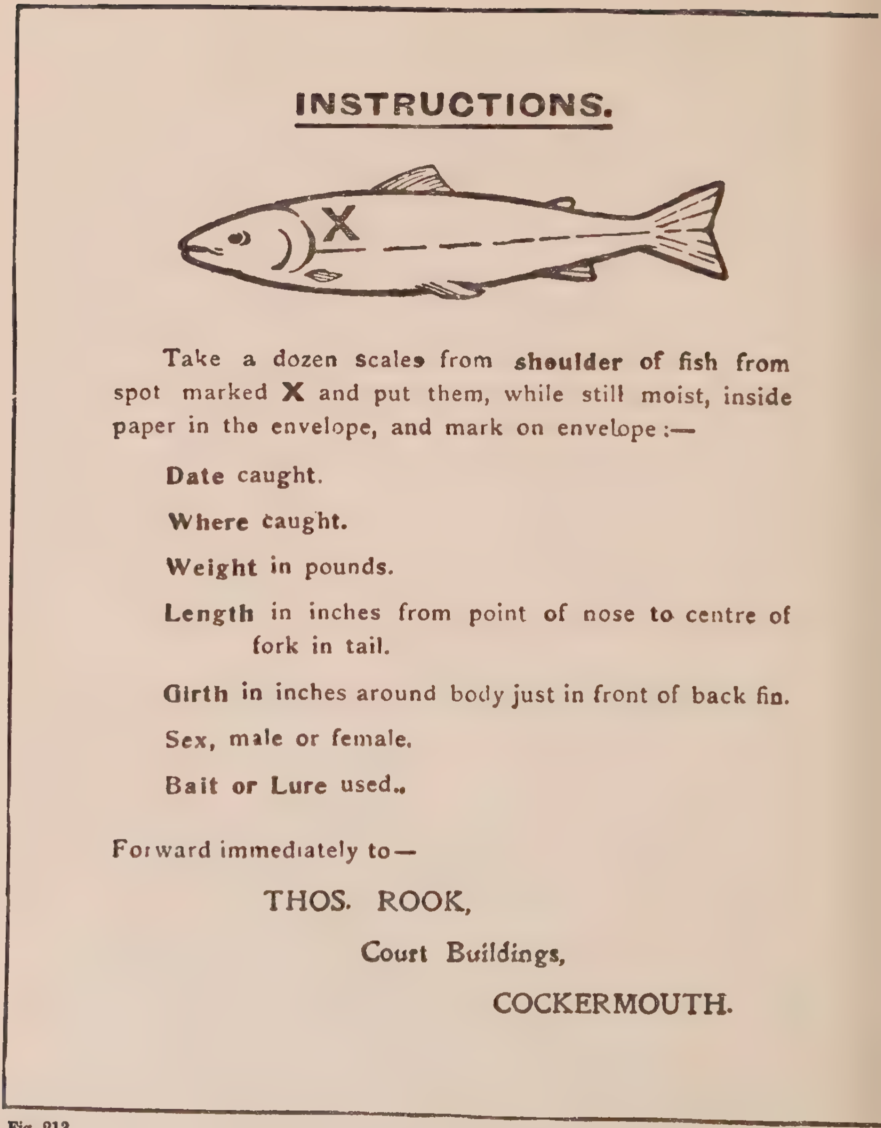
	FT.	INS.	
Broughton X Gauge			Rising Steady Falling
Water Condition			Good Fair Poor
Weather			Unsettled Rainy Settled
Prospects of Sport for next few days			Poor Fair Good

Gauge and prospects given Globe Hotel ('Phone 47) whenever river varies.

Thos. Rook
Manager.

A REPLICA OF THE GAUGE-CARD SENT OUT TO MEMBERS OF THE DERWENT FISHERIES ASSOCIATION.

Fig. 212



INSTRUCTIONS.

Take a dozen scales from **shoulder of fish** from spot marked **X** and put them, while still moist, inside paper in the envelope, and mark on envelope :—

Date caught.

Where caught.

Weight in pounds.

Length in inches from point of nose to centre of fork in tail.

Girth in inches around body just in front of back fin.

Sex, male or female.

Bait or **Lure** used.

Forward immediately to—

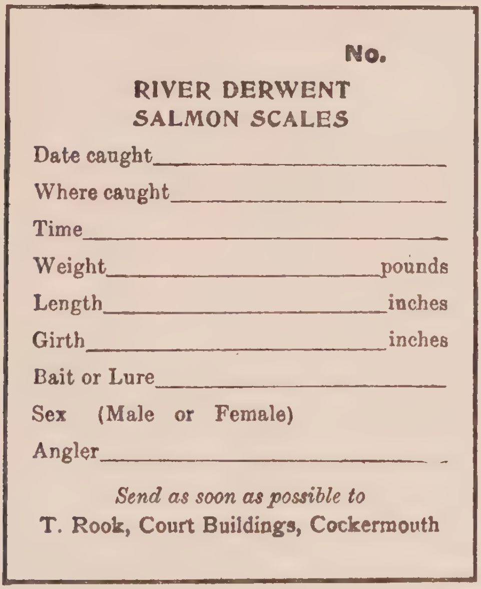
THOS. ROOK,
Court Buildings,
COCKERMOUTH.

Fig. 213.

THE CORRECT METHOD OF TAKING SCALES.

fishing-huts and the main one is fully equipped and can provide meals and sleeping-accommodation.

As the number of members is small, they have plenty of scope for fishing and are usually able to arrange among themselves the pools for the day. Only about twice in a good many seasons has it been necessary to ballot the pools and then only till midday, after which the members do the arranging. Fly-fishing has preference, but a spoon is allowed when a pool is out of condition for fly-fishing. Local fishermen are considered and waters allotted to them on certain days of the week. Every satisfaction has been obtained by doing so, for it has made legitimate fishermen of men who feel they must fish, whether they have permission or not.



No.

RIVER DERWENT
SALMON SCALES

Date caught____________________
Where caught____________________
Time____________________
Weight____________________pounds
Length____________________inches
Girth____________________inches
Bait or Lure____________________
Sex (Male or Female)
Angler____________________

Send as soon as possible to
T. Rook, Court Buildings, Cockermouth

Fig. 214.

A SCALE-ENVELOPE.

Gauge-cards (fig. 212) are sent out to members, as often as the conditions vary, notifying them of the state of the river, the weather and the prospects of sport. Small envelopes, known as pence-envelopes (fig. 214), and slips, describing the right method of collecting (fig. 213), are provided, so that every angler may place in the former some scales from every salmon he lands.

§ 3. *Stocking with salmon.*

The reduction in productiveness of the river ought to be at once made up by the introduction of *ova* or of young fish, or by the opening up of virgin spawning-grounds.

Much headway can be made by artificially hatching the *ova* in a well-constructed hatchery and depositing the young fish in the headwaters wherever there is ample food for them, but not where they will be washed away by the first flood that follows. (*Trout Fishing*, pl. 64.)

The yield of the modern hatchery is in the neighbourhood of ninety per cent against a conjectured twenty per cent by the natural process.

In computing the number of eggs to be laid down, these hatching-efficiencies must be included with the ultimate yield or return of mature salmon to the river. Whether the hatching is done on the natural beds or in a well-organized hatchery, there still remains a period, between hatching and the return from the sea, during which time terrible inroads are continuously being made on the lives of the fish.

A salmon will deposit as many as 900 eggs for every pound of its weight, so that, on this basis, a salmon of fifteen pounds will produce approximately fourteen to fifteen thousand eggs in the season.

No definite figures can be given of the exact loss in numbers of fry, smolts and mature fish that takes place after the hatch ; but some observers are prepared to state that only five per cent reach the smolt-stage and only five per cent of those smolts ever return to the river as salmon. Or, put in another way, to yield one salmon there is required,

	eggs	*fry*	*smolts*
By natural hatching	2000	400	20
By artificial hatching	450	400	20

Every care should be exercised in the selection of streams into which the eggs or hatched fry are to be introduced, to see there is ample food-supply for them, when they begin to feed. The waters should not be those which are liable to extreme flooding ; otherwise, most of the fish will be washed on to the land and lost. Streams that run dry are also to be avoided.

Where stretches of head-waters exist which salmon cannot reach owing to the presence of falls or other obstructions, these areas can be brought into cultivation by introducing the eggs or fry into them, providing there is plenty of food available and the dangers of flood and drought are few. The descending smolts will be able to travel downstream over barriers mature salmon could not leap. In this way, the stock of fish can be increased without impoverishing the food supply in the lower congested reaches of the river.

In the absence of a hatchery, the use of hatching-boxes will serve. These are made of wood with sides and bottom of perforated zinc. The eggs are floated into the boxes, after this the lid is fastened down and weighted, in order to keep it on the bed of the stream. Two short lengths of wire-rope are attached and it is tethered to a couple of small stakes driven into the bed. The lid-fastening must be a simple device, such as a turn button, to provide an easy way of opening for the daily inspection. Undue jolting of the box should be avoided, while opening and removing dead eggs. One side of the box is pierced with holes of about a quarter of an inch diameter through which the fry make their way, when most of the yolk-sac has been absorbed. As a rule, these boxes give a high percentage of successfully-hatched eggs.

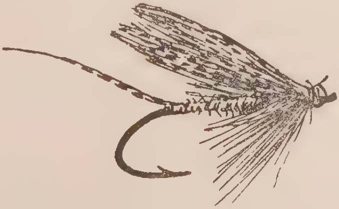
EPILOGUE

THE vibrant blue of the distance—the high half-naked hills and lingering snow—forests of pine where *cabhar* sings at Candlemas and vanished kite was once a king—copses of slim stripling birch and hazel under which pale primroses and windflowers find shelter from the May-time sun the cowslip loves—long meadows falling down to where a river runs with music. To those waters come salmon full of silver grace ; while on the rocks that fringe the pools sandpipers quiver, as they search the lichens, and then glide off to fill the air with shrill complaint and oyster-catcher proudly shows to all the world his livery of scarlet and pie.

Six hundred miles to the southward. Snipe drum overhead, redshanks flash past on tilted wing and terns come up with wavering flight from the sea. On the flanks of the Downs hollow scars in the ancient chalk gleam like fields of snow that lie in spring on far Cairngorm. And at their feet a well-loved river, born of an idle morning, meanders silent and full of peace through meads of iris and ragged robin ; and fat trout rise, or lazily move from side to side, to take their commons.

Hampshire Itchen and Highland Dee—one in their clearness and in the perfect fish they yield ! There are found angler's joy and the fundamental things of angling—the enquiring mind—delicacy hand in hand with the craft of the hunter—watermanship—unfettered thought and freedom from the shackles of outworn theory and tradition—wise pruning of unfruitful growth—the power to build with true vision upon the solid work men did in the past—and, greater still, a striving towards the fish's point of view.

High on the glacier that hangs above the Alpine valley in which I am writing, sun and ice fight grimly for the dominion of the poles and from their eternal striving do rivers flow. Sea and frost wage war unceasing and cliff and crag crumble before their subtlety. But, far beyond those giants, in regions where time and space are one or are nothing, the vaster orbs, obeying we know not what, go on their infinite courses and pay no heed to the joys and the triumphs of man.



A salmon-fly dressed in 1775 now in the possession of Messrs. Allcock Ltd. and kindly lent by them from their collection. This is referred to on page 325. The shape of the hook is very unusual.

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